## Astrolosy Louis MacNeice



Doubleday \& Company Inc.. Garden City, New York

## Contents

1 The art of the stars
2 Planets and personality 36
3 The signs of the Zodiac 70

4 The ancient world 106
5 The stars on top 134
6 The loss of respectability
7 Coming up to date 202
8 The anatomy of the horoscope 242
9 Predictions and pronouncements 270 Appendices
1 Elements of the horoscope 290
2 National horoscopes 298
3 Tables of sidereal time 302
4 Ephemerides of planets 327
Index 344
Acknowledgments 351

## 1 The art of the stars

In June 1941 the Nazis locked up all the astrologers in Germany, partly because their activities were considered unsuitable (if not subversive) in the National Socialist state. This remains one of the more [amous, if backhanded, tributes to one of the most diehard of the arts. A similar tribute occurred in the British House of Commons in June 1942. A Conservative M.P. asked the Minister of Information, Mr. Brendan Bracken, "whether his attention has been drawn to the fact that astrologers are predicting that Gemmany is on the brink of collapse; and whether he will stop astrological predictions about the war in order to counteract the risk that addicts of astrology will relax their efforts?" The minister replied: "Astrologers seem to have the misfortune to be perpetually in conflict. And, as no sensible person takes their predictions seriously, I cannot ask our overworked censors to meddle in their mysteries."

Mr. Bracken showed hinself more lenient than the Nazis, or than certain ancient Roman emperors who used to deport their astrologers. But perhaps the astrological profession is not as powerful in modern Britain as it was in Nazi Germany or ancient Rome. Nevertheless, Mr. Bracken was wrong. Many sensible people do take the subject seriously. Astrological almanacs and newspaper horoscopes are eagerly read by millions all over the world, many of whom believe or would like to believe at least part of it. And astrology has many addicts in Western countries today among the educated and the sophisticated.

[^0]In France the astrological author André Barbault has expounded the Zodiac with great elegance and relish (he will tell you that Louis Armstrong is a typical Aries character-"ardeur et improvisation forcenée"). In Germany the heavier guns of scholarship and of psychological and statistical analysis are trained upon such targets as "astro-biology." In the U.S.A., as in Germany, there has been a serious attempt to correlate modern astrology with the findings of modern psychology.

One of the veterans of American astrology, Dane Rudhyar, describes his art as a "system of symbolical life interpretation." He also calls it "the algebra of life" and, unlike some other of his colleagues (astrologers have always disagreed), flatly denies that it has any empirical basis. In England astrology is on the whole treated more frivolously, or at least on a lower intellectual plane, but it is easy to find British intellectuals who believe there is "something in it." In evidence, however, they usually either refer you to German, French, or American publications, or quote what some mysterious Hindu once said to them in India.

In other countries today astrology retains her old position as queen of the "sciences." In India it may not be true that (as some Indians allege) most of the more conservative members of the cabinet regularly consult astrologers; but it is certain that below cabinet level astrology permeates every sphere of life. Indian astrologers tend to work with collections of allegedly ancient ready-made horoscopes (known as nadi granthams) written on palm leaves. To the Western way of thinking this may smack of common fortune telling, but many Europeans have returned from India much impressed by what these palm leaves have told them about themselves. And Santha Rama Rau, a westernized Indian writer married to an American, has confessed that a return visit to India converted her from her American-style skepticism. She mentions a friend of hers, a Bombay businessman, who never makes an important decision "without first consulting his astrologer." For that matter, this has been said of J. P. Morgan. According to one authority, the most famous modern American astrologer Evangeline Adams was one of Morgan's advisers.

Professor Morris Carstairs, a social psychologist in Edinburgh University, has made a detaited study of an Indian community and has concluded that Hindus consult astrologers in order to discover their own real wishes: "With the initial premise of this self-centered view of the world, the Hindus' unshakeable belief in astrology became more comprehensible." But there are some Indians who find the whole practice a nuisance. One of them writes of the ubiquitous astrologers: "They draw a red herring across every practical problem-choice of profession, marriage, journeys, treatment in illness-and in truth disturb and upset every practical arrangement."

Many countries in the Western world, at various stages of history, have similarly come under the influence of this very peculiar body of beliefs that has been building up through the ages. That influence, and the reasons for it, is the subject of this book. But, first of all, what is astrology?

Even in our skeptical age, astrology numbers many well-known intellectuals and artists among its followers. Right, the Irish poet W. B. Yeats (1865-1939), who was fascinated by the irrational ; far right, a pencil sketch of his uncle George Pollexfen, who taught Yeats to cast horoscopes. Below left, the British composer Gustav Holst at his piano. and, right, the cover of a recording of his suite The Planets (composed in 1919). Holst's interest in astrology inspired this composition-a musical interpretation of each planet's traditional astrological character.


Left, the American writer Henry Miller (born 1890), whose enthusiasm for astrology has lasted throughout a long literary career. Though he does not claim to "live" by it, Miller admits to finding "disturbing accuracies in everything that concerns astrology."

All persons who give any credence whatsoever to any form of astrology must hold one belief in common: that there is some kind of relationship between the stars and human beings. It may not be a relationship of cause and effect (i.e., the stars may not directly influence human beings). But relationship there must be. To put it colloquially, the stars are part of our set-up.

But for many people today, at least in Europe and America, astrology is mainly a matter of horoscopes and predictions; the ordinary man, being selfish, wants to hear about himself and his prospects. The widest appeal, therefore, is much the same as that of fortune telling with crystal balls, cards, etc. (Astrologers have themselves sometimes gone in for such sidelines, though this is usually much frowned upon by the more serious theorists and practitioners.) Some hardheaded students of the subject believe that a good astrologer can make


successful predictions, but that he does this without really knowing (consciously, that is) what he is doing. The stars are just as much props to him as the Tarot cards are to a fortune teller, or the lines on the hand to a palmist. The real active agent is his own intuition.

But other believers in astrology regard the prediction of events as its weakest side, and would prefer the art to be restricted to the diagnosis of character, and, at most, the assessment of an individual's potentialities. At this they think that it can be of the greatest use socially. The modern English astrological writer Rupert Gleadow maintains that "the comparison of horoscopes is the only certain way of making marriage not a lottery but a partnership." Many astrologers today claim that they can act not only as marriage counselors but as advisers on health, education, and careers.


Above, a scene from the film Nine Hours to Rama, recently made in India. The police believe that killers will try to assassinate Gandhiat an astrologically auspicious moment ; here two detectives consult an astrologer to find out when that moment might be. Reliance on astrological prediction is widespread in India today, and has been for centuries: Above left, a Nepalese palm leaf horoscope containing prognostications for the years 1362-66. Left, a more recent example of the indian astrologer's art : a decorative motif of bulls (symbolizing the sign of Taurus) from the horoscope of a 19th-century prince of Lahore.

The subject indeed has many forms and applications, whose order of importance varies according to time and country. Astrological medicine, which in the first century A.D. brought a fortune to a doctor in Marseilles, no longer enjoys a vogue in Western Europe, yet doctors can be found who believe in it. (The American astrological magazine In Search has featured articles by Dr. W. M. Davidson and Dr. William Gutman, both practicing medical men.) Similarly, while run-of-the-mill practitioners rest their claims on the hoary antiquity of what skeptics have called this "fossilized science," the intellectuals among modern astrologers are anxious to liberate their subject from the dead hand of tradition. A leading Swiss astrologer, Karl Emst Krafft (who figures in an extraordinary story to be recounted in Chapter 7), once went so far as to write: "The tradition is like a rotting corpse, and should not be brought to life again." A similar line is taken by several of the leading Americans.

Even within traditional astrology, if we look back through the centuries, we find a great range of beliefs-from the ancient (and medieval) conception of the stars as gods or divine animals (typical question: What food do they eat? typical answer: Purer food than we do) to the 15th-century Italian humanists' comparison of the star-man relationship to a struck harp that sets the strings vibrating in some other harp that no one has touched. And astrology has usually attracted a wide range of adherents. In early 16th-century France, the distinguished court physician Cornelius Agrippa accepted astrology (though he renounced it later) at about the same time that the famous obscurantist prophet Nostradamus was writing his scrambled verse quatrains that have since given much pleasure to lovers of puzzles and prediction.

Many of Nostradamus's prophecies are not overtly astrological, but this is true also of many predictions in astrological almanacs; anyway, it was as an astrologer that people thought of Nostradamus in his own day. And his mystificatory technique in his writing is typical of a certain kind of astrologer through

the ages．The French of his verses is not only the（to us）difficult French of its period；Nostradamus often deliberately misspelled words，and used anagrams， portmanteau words，and telegraphese．So his statements about the future are open to widely differing interpretations，though many commentators have agreed as to the meaning of some quatrains（such as several that apparently foretold the French Revolution）．

In the same period astrology numbered among its famous supporters men like Paracelsus，the Swiss physician and alchemist ；Melanchthon，the German theologian and friend of Luther＇s；and Cardan，the Italian physician and mathe－ matician．In 16th－century England，Queen Elizabeth＇s astrologer，John Dee， could assert that＂Astrology is an art mathematical ．．．＂while his greater con－ temporary Francis Bacon was writing：＂As for Astrology，it is so full of super－ stition，that scarce anything sound can be discovered in it．＂（Yet even Bacon could later add：＂I would rather have it purified than altogether rejected＂－ a feeling that has been echoed by the present－day attitude of astrologers like Krafft，quoted above．）

Some astrologers consider their craft an＂occult＂one；others think it is as much a matter of fact as any empirical science．In 1899 an American astrologer using the pseudonym＂Gabriel＂（such pseudonyms having long been fashion－ able）wrote in a book called The Gospel of the Stars：＂Unlike religion，astrology is based not on faith but on facts．The religious man believes；the astrologer knows．Experiment and observation are his guides．＂But some of his colleagues at the time were combining their＂science＂with theosophy，which claims to be in direct touch with the＂divine essence，＂transcending both observation and reason．（The Theosophical Society was founded in the U．S．A．in 1875．）Some years ago a very successful Eriglish editor of astrological magazines，who used the alias of＂Alan Leo，＂wrote：＂I believe every human being belongs to a Father Star in Heaven or Star Angel ．．．．＂

Left，a scene from the American film Love is a Many Splendored Thing（1960）．Two lovers consult a Chinese fortune teller to find out whether they will have a long and happy life together．All the world seems to love a fortune teller－which（since most people equate astrology with prediction）explains much of astrology＇s popularity．

Right，some prophetic verse written by the 16 th－century French astrologer and seer Nostradamus．The stanza printed in green has been translated thus：
By night shall come through the forest of Reines．
Two parts Voltorte Herne，the whitite stone， The black monk in grey within Varennes． Elected captain，causeth Tempest，fire， bloodrunning．
It has been interpreted as a prediction of the capture of France＇s Louis XVI in 1791. while fleeing to Varennes（disguised as a monk）to escape the revolutionaries．

CENEEKIE及 8.
De nuid viendra par la foreft de Reines， Deux pars vaulrorre Hene la pierre blanche， Le moyne noir en gris dedans Varennes， Enev cap caufe tempelte，feu，lang tranche．天II．
Au temple haut de Bioys facie Salonne， Nui t pont de Loyre Preiar Roy pernicant， Curleur victoire aux marefts de la lone， D＇ou prelarare de blanes abormeanc． I 11.
Roy 8 fa cour au lieu de langue halbe， Dedans le temple ris à vis dupalais， Danslejardin Duc de Mantor Bi d＇Albe，$^{\text {d }}$ Albe \＆Mantor poignard，langue \＆palais．

天₹：11．
Puifnay joüant au frefch deffoubs la tonne， Le haut du toift du milicu fur la zefte， Le Pere Roy au temple faint Salone，

The more serious modern astrological writers often tend toward caution. Louis de Wohl, for instance, who after a long residence in Germany went to live in England, was not unduly modest : According to himself, he conducted a one-man astrological war with the Nazis. Yet even though de Wohl can write : "A man who plunges blindfold through the London streets is distinctly safer than a man without a horoscope," he can also write of astrology in general: "Let us get this straight from the start : it is not prophecy. It is dealing not with certainties, but with tendencies. It has a fairly wide margin for error-but it works."

But prophecy, of course, is just what the ordinary man wants (hence the popularity of all kinds of fortune telling). And in practice de Wohl went in for something very like it. For example: "It was clear to me, as to every student of astrology who knew Hitler's horoscope, that he would launch his great attack against the West when Jupiter was in conjunction with his Sun, in May 1940."

Curiosity about the future is a primary reason for the continuing popularity of astrology. Another reason for many people (though astrologers have often been at pains to deny this) is the almost cosy appeal of fatalism : In times of either stress or failure you can always pass the buck to the stars. But perhaps equally important is the delight most people take in classification, especially in the classification of themselves and their friends: "Are you Virgo?" "Oh no, I'm Leo." The bulk of any popular book of astrology is given up to the human characteristics attributed to the influence of the heavenly bodies, whether they are the planets or the signs of the Zodiac. Even animals, plants, precious stones, etc., come under this influence. These will be discussed again, but some samples may be given here from an early 19th-century English astrologer, the first "Raphael" (another celestial pseudonym-real name R. C. Smith):
"Saturn," writes Raphael, "is by universal experience acknowledged to be the most powerful, evil, and malignant of all the planets." Among persons he represents (among others) grandfathers, paupers, monks, and gravediggers; among animals cats and dogs "and all creatures delighting in filth and breeding from putrefaction"; among plants hemlock, hellebore, poppy, mandrake, nightshade, and moss; among trees willow, pine, yew, and cypress; among birds the crow, owl, and cuckoo; among places deserts, churchyards, and all "muddy dirty stinking places, wells, and nuisances of every description." His wind is the east wind and his favorite mineral is lead.

This grouping of interrelated creatures and objects has the same appeal as certain card games with their sequences, flushes, and so on. It all goes back to the basic concept of sympathy, which we shall find stressed over and over again when we come to look at astrology's history. There is sympathy between the parts of the universe, between things celestial and things terrestrial. From this stems a whole system of correspondences, the most famous perhaps being those between the signs of the Zodiac and the parts of the human body, constituting the so-called "Zodiacal Man."


The city of Jerusalem, usually assigned to the sign of Virgo. Most kinds of terrestrial objects-from cities to blades of grass-have been classified by astrologers in terms of the influence of planets or Zodiac signs.

There is something in this concept of natural correspondences that attracts the mystic in us. And there is an equally strong attraction for the poet in us, or at any rate for the patternmaker. The same Raphael becomes uncommonly eloquent on this principle of sympathy: He speaks (the following quotation is much boiled down) of the "simple and easy but beautiful theory, which presumes that the same sympathetic power which causes the iron and magnet to attract each other, . . . the same occult influence which drives the frantic herd about the pastures; which provokes the gadfly to vex the steed; . . . which seizes with fits of temporary madness the owl and raven; which affects the brains of the maniac or which circulates through all living nature, pervading all, disquieting all; . . . this universal sympathy or instinct (for all instinct is sympathy) is neither more nor less than the secret but powerful influences of the heavenly bodies."

The pigeon-holing technique of astrology is also extended to the hours of the day, historical periods, and towns and countrics. Algiers is assigned to Scorpio, New York to Cancer, London to Gemini, both Jerusalem and Paris to Virgo, Hamburg to Aquarius, and Oxford to Capricorn. Scotland, according to the modern astrologer Maurice Wemyss, "is particularly influenced by Capricorn 26

[each Zodiacal sign consists of 30 degrees], a degree of 'caution,' and its ruling planet aturn." The U.S.A. is under Gemini and Portugal under Pisces. The seven-day weck is apportioned among the plancts: Saturday is Saturn's day, Sunday the Sun's day (Somolag in Geman); in French, mardi (Tuesday) is Mars's day, and mercredi (Wednesday) is Mer ury's day (mercoledi in Italian).

These conceptions also survive in the very vocabulary of most modern languages. In English the word "satumine" is connected just as much as Saturday, with the planet (which in turn got its name from a god). Similar words are "jovial" and "mercurial,' while the English "disaster" and French "désastre" derive from the old Greek word for star. For many people these associations may be as unfamiliar as the ancient doctrine of the four humors, which also survives in modern languages in words like the English "sanguine" and the French "melancholie." This doctrine, like that of the four elements, was very much involved with astrology' ; indeed, some modern astrologers still make use of it, as they also make use of the ancient parallel of microcosm and macrocosm. The figure of the so-called Zodiatal or astrological man is just one illustration of this doctrine. And medieval astrologers of en combined their caft with that of alcheny, which also presupposes mysterious correspondences in things.

## Forms and varieties

Traditionally, astrology was divided into matural astrology, foretelling the motions of the heavenly bodies (now absorbed into astronomy), and judicial astrology, which interprets these motions in terms of terrestrial life. This latter has many subdivisions, the most important today being undisputedly genethlacal astrology, or the art of erecting and interpreting individual " horoscopes.

Four traes oi "judicial" astrolow, which interprels the heavens in terms at lite on earth. Letf. some of the people that gatheted on Mont Blanc in Switzerland in anticipation of the end of the world〈forecast by an Italian astrologet for July 14. 1956\}. This kind of prediction is "mundane" astrology, which foretells events of national or international importance like eanthquakes or revolutions. A more popalar form soday is "penethliacal" astrology-casting and inserpreting the horoscopes or "natal charts" of individuals. Right. an Arterican astrologer with some of his clients" chärts.


Casting horoscopes to answer questions is called "horary" astrology : below right, an Italian fortune teller outside a Naples law court undertakes to answerlitigants ${ }^{\circ}$ questions by this method, "Meteorological" astrology is weather forecasting. Below left, a page from an Austrian calendar for 1962 showing the first nine days of January: below them at the bottom of the page are Zodiac signs, and above them symbols for different kinds of weather.


But this was a late comer; it was preceded by mundane astrology, the chief interest of the Babylonians (the inventors of the science) who were concerned only with the fortunes of the state or of the king as head of the state. They naturally paid particular attention to such conspicuous phenomena as eclipses of the Sun or Moon. In some circles, these (and comets) are still assumed to portend grand-scale happenings. For Raphael, in his Manzal of Astrology (1828), an eclipse of the Moon on November 3, 1827, boded no good to the British nation (whi hat wat the time brewing up for the frrst parliamentary Reform Bill.. Raphael's illustrator made a great deal of the occasion : Britamia sits downstage on the left covering her eyes, a bull is being strangled by a snake, unstage right is a gesturing skeleton. Not only national but world-wide disasters are foretold in mundane astrology-disasters like the threatened deluges in 1186 and 1524 , neither of which came off. One of the most recent examples of such mundane miscalculation was on February 5, 1962; from the Indian point of view (but not the European) there was a conjun tion of all the main planets in Capricorn, which many Hindu astrologers said would mean the end of the world. Crowds of Hindu holy men sat up all night for it in Delhi.

There is also horary astrolog?, extremely popular in the 17 h century but now disapproved of by some astrologers. It consists of answering questions by making horoscopic calculations for the momem at which they crop up. Ingrid Lind, author of Astrology and Commonsense, writes: "To me this savours of the bead


Left. 13 cards from the earliest existing pack of Tarot cards (made in Florence in the 15 th century) depicting an astrologer (top) and the 12 signs of the Zodiac. Tarot packs (though not all containing astrological cards) are still used today for fortune telling. Another form of divination sometimes linked with astrology is paimistry-reading the future froma hand. Above. a palm marked with planetary hieroglyphs from a book by the 17thcentury English occultist Robert Fludd.
curtain and fortune-telling booth and I will have nothing to do with it." On the other hand, Rupert Gleadow, in his book Astology in Exeryday Life, appears to find it both useful and anusing: "If a letter or telegram arrives to amonnce, for example, an unwelcome visitor whose journey may possibly be postponed, a horoscope set ap for the moment when the telegram was read will set all douhts at rest by announcing quite simply whether the visit will rake place, and if not why not."

Gleadow, who seems to get great fun out of his astrology (and even the most hardboiled rationalist would find that it affords amusing parlor games), is also prepared to accept medical astrology. He says we should watch the 12 "biochemic cell salts," which are essential constituents of the body and which can be related to the 12 signs of the Zodiac. Thus the Libra salt holds the halance (Libra of course means balance) between the acids and the alkalis. "It is a good rule," Gleadow writes, "that if any sign contains an afflicted planet [i.e. one that is badly "aspected"; see later], the body will need the . alt corresponding to that sign." The 12 cell salts are usually accepted by astrologers in the Li.S.is. - but some (in spite of the tempting parallel with the Zodiac) have decided that this was oversimplification, and have added a few more to the tally. On medical astrology generally, a veteran American physi ian has written: "The doctor needs astro-diagnosis worse than he can ever realize until he has used it for some years.'

As for electional astrology the art of horoscopically choosing exactly the right moment for an enterprise), Gleadow warns us to wath the date for laying a foundation stone, or the noment the chanapagne bottle sends the new craft down the launching slip.

Aside from these general divisions, there are many related sidelines, such as the use of astrologital "image" or amulet, or phersognomiral astrology, conerned with the facial characteristics connected with the stars' influence. As an illustration of the astonishing lengths (or minutiac) to which astrologers can go, consider the "Sabian Symbols" of the American astrologer Mare Edmund Jones, which are presented by Dane Rudhyar in his book The Astrology of Personality. Jones devised a separate symbolic inage for each of the 360 degrees in the Zodiac. He also halved eath sign (containing 30") to make 24 "spans' ( $15^{\circ}$ each) with different qualities or characteristics assigned to them.

Jones's image for the eighth degree of Aries (under the "Span of Realization") is: "A woman's hat, with streamers blown by the east wind." Jones's explanation: "First real attempt at selfeexteriorization and embodiment in consciousness. Individualizing Rastem forces are suggested." For Aries $30^{\circ}$ (the Span of Examination) the symbol is: "Young ducklings disport themselves merrily upon a pond." Explanation: "Essential social co-operativeness and appreciation of selfhood." For Cancer $4^{\circ}$ (the Span of Expansion): "A hungry cat argues with a mouse before eating her." Explanation: "The urge to self-justification through intellectual sophistry or social-ethical considerations. Sense of self-righteousness."

For Cancer $8^{\circ}$ : "Rabbits in faultess human attire parade with dignity." Explanation : "Reaching out to participation in a higher order through imitative behavior:" For Sagittarius $29^{\circ}$ (the Span of Detachment): "Perspiring fat boy, eager to reduce, is mowing lawn." Explanation: "Desire for fitness inherent in all human beings."

The whole subject seems as involved as a vast Hindu temple (and just as capable of decadence). We will try to avoid as many of the more obscure astrological byways as possible, in order to maintain a view of the forest as well as the trecs. And, as a further help, here is a short glossary of some of the basic horoscopic terms that will crop up in Jater chapters:

Ecliptic: The apparent path of the Sun through the sky. From the earth it appears to describe a great circle.
zodiac: A band of sky extending about $8^{\circ}$ on each side of the ecliptic. This band is the racetrack of the planets; with the exception of Pluto (which we cannot see) we never see them outside it. In orthodox, traditional European astrology this band is divided into $1^{12}$ segments, each of $30^{\circ}$, known as the

Signs: Though these have the same name as the Zodiacal constellationsAries, Taurus, and the rest-they are not to be confused with them. The difference will be explained later.

Houses: There are 12 of these too, but they are not the same as the signs (or as the constellations). Astrologers use several different systems of houses,

Some astrological terms explained in diagrams: Right, the signs of the Zodiac and their traditional symbols. Below left, the ecliptic. the Sun's apparent path around the earth. Below right, the distribution around the eclipitic of the 12 signs of the Zodiac-which are also assumed to move around the earth-in relation to the 12 houses (separated by "cusps"), which are fixed.

| Aries | $\gamma$ | Libra | $\sim$ |
| :---: | :---: | :---: | :---: |
| Taurus | $\zeta$ | Scorpio | $\pi$ |
| Gemisi | II | Sagitarlus | $x^{7}$ |
| Cancer | 5 | Capricorn | W |
| Leo | 0 | Aquarius | $\approx$ |
| Virgo | 10 | Pisces | \% |


but whatever the system the houses (malike the signs) stay put. Think of the celiptic as a clock face: The signs keep moving around it like the hands, while the houses keejs their places like the figures.

Cusps: The dividing lines between one house and another. Owing to the disagrement about house division, one man's cusp can be another man's blank.

Medinm Coeff (or M.C.): Latin for midheaten. This is the from above the observer where the Sun "crimmates" at noon. Its opposite number is the Immm Coeli (I.C.). A vertical line drawn between the ertwo points crosses at right angles a horizonal line connecting the ascondant in the east with the descendant in the west.

Arendant: Technically, this is the desree of the ecliptic that is risung above the eastem horizon at any moment. But more gemorally the tem is used to designate the rising sign (whish is of the utnost importance in horosopes).

Angles: The cross formed by the aseendantedescendam horizonal line and the M.C.-i.C. vertical line (or neridian). The angles add importance to any planet found on or near any of the four arms of the cross.

Transit: When a planet passes dver a sensitive spot in your natal chatr it is sad to be "transiting" it. Say your ascendant degree at birth was $23^{\circ}$ Taurus. It is known \{fom atstrononically compiled tables) when a certain planet is going to transit that point, so it is casy for the astrologer to tell you to expeet certain effects at the time of transit.

Right, the 19 planets with their symbols. Below left, the positions on the ecliptic of the medium coeli (noon), the imum coeli (midnight), ascendant, and descendant. The lines joining these points (which produce the "angles") form the basis of any horoscope chatt. Below right, examples of planetary "aspects": Mercury (colored fed) is shown in "opposition" to Neptune: in "conjunction" with Venus ; in "sextile" with Saturn ; in "square" with Uranus: in "trine" with Mars.

imunicoels

| $\operatorname{Sin}$ | $\bigcirc$ | Juphes |
| :---: | :---: | :---: |
| Eanth | 0 | Saturn |
| Monn | 0 | UTithus |
| Mercury | $\zeta$ | Nepture |
| Venus | $Q$ | Pluto |
| Mars | $\bigcirc$ |  |




A graph based on the resutts of a statistical investigation of eraditional astrology made in 1939 by the great Swiss astrologer Karl Ernst Krafft. For this experiment. Kraffi took the birth dates of 2817 musicians, which he allotted to their correct signs of the Zodiac. The resulting curve shows that the number of births varies little from one sign to another. The highest peak is found under Taurus-but, traditionally, this sign has no association with musical talent.

Aspects: These are established geocentrically, like most of astrology. You draw a line from the center of the Earth to one planet and another line to another planet and measure the angle between them. (Don't confuse this with the "angles" just mentioned.) As the whole Zodiacal circle in which the planets travel is $360^{\circ}$, a planet rising is $180^{\circ}$ away from a planet setting. Two such planets are said to be in

Opposition: Traditionally a bad aspect, though some modern astrologers dispute this. The opposite of opposition is

Conjunction: Where two planets are very close together (say, within $8^{\circ}$ or $10^{\circ}$ of each other). This aspect can be either good or bad; it depends on the planets concerned. There are other aspects, but here are the major ones:

Sextile : Two planets $60^{\circ}$ apart. Good.
Square : Planets $90^{\circ}$ apart. Bad.
Trine: Planets $120^{\circ}$ apart. Very good. Unlike a conjunction, it does not matter here if one of the planets concerned is a eraditional "malefic." The English poet Dryden, in an epitaph for an admired young lady, writes:

For sure the milder hanets did combine
On thy auspicious horoscope to shine.
And even the most malicions atere in trine.
The minor aspects have names like quintile $\left(7^{\circ}\right)$, sesuadrate $\left(135^{\circ}\right)$, and

quincuns $\left(150^{\circ}\right)$, but we need not bother with them here. There is, however, something called an

Orb: If aspects were limited to the exact degrees of the definition, they would not crop up nearly so often as they do. Astrologers allow a margin of alout $7^{\circ}$ for sextile and about $12^{\circ}$ for conjunction or opposition of Sun and Moon. This margin is the orb.

The presence of all this apparently scientific procedure (in a subject so often comected in modern minds with quackery, magic, and occultism) can be ascribed to the fatt that, whether astrology now is a "fossilized science" or was never any more than a pseudo-science, it origimated in the wish that is at the heart of science-the wish to make sense of the universe. When astrology began, in ancient Babylonia, it was inseparable from astronomy. And the two, as we shall see, were not divorced until the time of Sir Isaac Newton.

## Attacks and defenses

During its very long history many attacks have been made on astrology, sometimes on rationatist grounds, more often on religious or moral grounds. The astrologers have naturally defended themselves, and the arguments on both sides have been endlessly repeated through the centuries. It should be noted that such opponents of astrology as the Christian Fathers attacked it not because it was a false science but because they thought it was a science. Also, some of the attacks on astrology (like Francis Bacon's, quoted above) assume there is something in it, or could be something if only its exponents were more knowledgeable or more scrupulous.

Bacon's demand for a sane astrology is echoed in our own time by some deeply inquiring minds in Germany. Gireat efforts have been made in that country to vindicate astrology as a science \{i.e., statistically; the French secm to have started this). Various experiments have been made from this angle, the object always being to prove that the diagnoses of astrologers are correct more
ofter than pure chance (as indirated by the laws of probability) would, allow. Sometimes the experimenters ompare the horoscopes of a large number of people belonging to an asily defined group, such as lunatics or musicians. If a cerain pattern in the natal charts recurs too often for the "laws of chance," this is taten a proof of the relationship between human b"ings and the stars. About 1900 a Prenct artillery officer and amateur astrologer named Paul Choisnard made this son of investigation into the boroscopes of people of outstanding ability: but he dealt with then only by the hundred. Later, in Switzerland, K. E. Eraff clamed to have made bytoto ohservations of the harts of musicians and painters and to have achicved positive results.

More recutly tarious tesis have been made by psy hologists, the most fanous of these by Carl G. Jung (as will he recounted later). In America in 1960 an Illinois psychologist, Vernon Clark, ran a eest using a group of 20 astrologers and a control group (for comparison) a (30) psychologists and ocial workers. Each of the 40 person was given 10 horoscope (of persons unknown) and 10 case histori and was asked to pair them off. A cording to Mr. Clark, the result of the control group came ont "almost exactly at chance"; those of the astrologers ware higher. Similar resalts were obtaned from a second and more complicated test on the same lines.

Some modem defenders of astrolory, abandoning statistics and empirical criteria in general have tried to prove that it was in the same category either


Above, a Babylonian boundary stone from about 1200 E.C. showing aking and his daughter at the feet of a goddess; above inem are Venus, the Moon, and the Sun. Left, a 16 th-century portratt of John Dee. court asisologer to Cueen Elizabeth 1. Astology's prastige-gained from long association with royalty-declined in the Renaissance, when printed books gave its mysteries to a wider public. Right. pages trom one of the earliest printed books on astrology (1485).
as mathematic (which is assumed the nom-ampirical) or as mysial religion or the ars. "ome astobogers have insisted that the ansheri moxe mast now
 etther a substitut for or a culmination of religion.

Some of these controversies on the validity of astrology will appar in the histori al chaptere of this boek. A distin tion between ".igns" and "canses" was repeatedly and forthly drawn in past dehates some satd the stars wer. one and sone the oblaer. Thi incviably involued a discussion of free will. which proved a muct of a red hering as it does with phitosophers proper. Though the arghments repeat themsels \& though the enturies. the tone of voice usually varies according to the prod and comme and also according to the intelle bat level or social das of the debate.

As regard lass astrolosy for long was onsidered a royd somence or art ; astrologers (who themselves fomed an elite) were a ceped attendants upon the kings of Babyton and. suria, the emprors of Rome, popes in the Midde Ayes, and the great ducal familes in Remassance Italy. But by the lou century, in spite of the fat that John Dee was patmonized by Onten Elizabeth and Nostradamus by the quen of France, the social decline of the art was apparently concurtent with the appearance of ant that astrological almanacs, which are ctill popular today, And the atmanac maker were rapidy follewed by the parodists. For example, in $154 t$ there appeared in lingland a satirical pamphet

entitied A Merry Prognostication containing the following stanza:
Bui I say if the ninth day of Nowember
Had fallen won the tenth day of December
It had been a mariellous hot year for bees
For then had the Moon been like a green cheese.
Some classical examples of almanacs from an intermediate period can be found in the writings of an English astrologer who called himself "Zadkiel the Seer." In his Herald of Asfology (later renamed Zadkiels Almanac) published in 1832, he made predictions for 1833 . In his 1834 publication he reprinted some of these predictions together with notes on their fulfilments. Sample prediction : "About the 12 h [of Febuary 1833] a vexatious event happens in London." Fulfilment: "A baronet's lady sent to the House of Correction on this day." For 1836 Zadkiel predicted: "About the 9 h February lamentable events occur in Ireland; accidents by water will there be frequent." Fulfilment: "On Sunday the 14 th inst., a sailboat from Limeri $k$ was upset in a squall and went down, when of 15 persons on board only three were saved."

These specimens are typical of almanac predictions from the Renaissance down to our own day. Amanac makers also of course make frequent predictions about international events; but hete they tend to play sale or hedge and are rarely overspecifi. For example: In April the British govemment brings out its budget. In Oid Moore's Almanac (a long-established and popular specimen of its kind) lor 1963, the first prediction for April states: "This year the political situation demands a solt budget, but the economic circumstances require a tough one."

For the decline of the royal art there were several probable causes, most of which overlapped each other. Chief of these perthaps were the Reformation, which cast doubt upon all forms of traditional authority or superstition ; the increasing use of the sernacular where previously Latin had sufficed; the invention of the printing press and the rapid increase of printed books; and of course the Renaissance spirit of scientific inquiry. To take just one of these: The traditional astrology that was derived frem Ptolemy (second century A.D.), so long as it was confined to manuscripts, remained the property and mystery of a few. Once it got into print, it gained in populariry but lost in prestige. Besides all this the telescope was now on its way.

By the 17th century the "scientific revolution" was really gathering force. But at the same time England produced her most popular astrologer, William Lilly, whose name is still honored in most modern astrological textbooks. Yet Lilly's milien was very different from that of his predecessors in, say, 15 thcentury Italy; he descended or was forced to descend to repeated undignified nud thowing and squabbling, not only with the enemies of his ant but with various rival practitioners who would have liked to take over his following. After Lilly's time astology lost even more respetability, but made a comeback toward the end of the 19 th century that has ontinued in our own time.


Above, Britain's King Edward VIII (later Duke of Windsor) broadicasing his abcication speech in December 1936. This event was foreshadowed by a newspaper horoscape (right) cast for his niece Princess Margaret at the time of her birth in 1930, which predicted events of great importance affecting the fortunes of the princess in her seventh year. This kind of general and often vague prediction has been (since the 16 th century) a feature of most popular almanacs and astrological periodicals.


While most of our historical retrospect will naturally be devoted to Europe, it should be remembered that from very carly tim - until today astrology has flourished-and with less fluctuation-in most Eastern countrie.. The prevalence of the ant in 20th-century India has already been mentioned. Indeed Indian astrologers lam that it was the We t (as far back as Ptolemy or earlier) that learned from them. But there are very important differences between Hindu and Western astrology. For one thing, the fommer presupposes a belief in reincarnation. And the Hindus also have a diferent conception of the Zodiac.

In China, where astroloners had ranked very high from long before the time of Christ, the great Venctian traveler Marco Polo found them still very powerful in the 13 th entury. He recounts that in the great city of Kanbalu there were about 5000 astrologer and soothsayers provided for by the emperor. They used astrolabes and made weather forecasts (mefeorological astrology) but also foretold such things as epidemies, wars, and conspiracies. Moreover, they were great exponents of electional astrology. No one would undertake a long journey without first consulting an astrologer; and no astrologer would give such advice until he knew the year, month, and hour of the would-be traveler's birth.

In a quite different part of the same huge empire, subject at that time to the Longol Kublai Klan, Marco Polo explains how astrologers there could hold up funcrals. No upper-class family would allow any one of its members to be crenated until the astrologers had examined his natal chart and fixed a day for cremation according to the planet or signs. Such a day might be six months off, which meant ordering an extra thick coffin and a large amount of preservatives and deodorants. And sometimes, for good measure, the astrologers would insist on the body being removed from the house along some particular linewhich oft m cmaiked making a hole in the wall.

Astrology had a long run in China. As long as the old empire lasted, astrologers were as important at court as they had been in ancient Babylon. Thus even the tough old Dowager Empress Tzu Hsi, who ruled China at the time of the Boxer Rising, owed her o casional vacillations in policy to the intervention of astrologers. And when sic was buried at 5 A.m. on November 27, 1909, it was the astrologers who had chosen the hour for the funeral. The site of her tomb had been cho en about 35 years carlier when, again thanks to the astrologers, the remains of a fomer empress had to be shifted to make room.

Mao Tse-tung presumably cares for none of these things. But in most other parts of the Far East astrology appears to be still flowishme. In what used to be Indochina astological flags feature in the public pro essions, while there is a 200,000 -stron [ederation in Japan to which professional astrologers belong, as well as palmists, graphologists, ete.

In most countries ther" are differences in the systems employed by astrologers and it the emphasis given to different aspects of astrology; at the same time there has been a good deal finterplay between most countries in Europe and Asia. In the old civilizations of Mexico and South Anncrica, centuries before


The Crown Prince of Sikkim (a province
in northern India) and his American
bride at their wedding in March 1963.
In accordance with Eastern custom,
astrologers were asked to select a
favorable wedding date: their choice
posiponed the ceremony for a year.
they had any contact with Europe, some form of astrology was apparently practiced that was almost certainly different from European or Asian forms.

The literature on astrology is vast, and to read much of it at a time leaves one punch-drunk. Most of it is repetitious and much of it is tendentious and illwritten. Also, since the time of the Roman poet Manilius (first century A.D.), and the Greek astronomer-cum-astrologer Ptolemy, whose books are the first two extant that deal with the subject in detail, expositions of astrology have by their nature been cluttered up with technicalities, many of which seem arbitrary to many people (including some astrologers). By now there are so many things to consider in a horoscope that, while it may mean extra work for a scrupulous astrologer, to others it affords a ready let-out. For instance, people who read newspaper astrologers usually assume that your dominant Zodiacal sign is decided by what day of what month you were born on. But Rupert Gleadow writes: "It cannot be often enough repeated that one can be born under any sign of the Zodiac on any day of the year." The confusion will be cleared up in the next chapters.

The literature on astrology is not, of course, confined to sheer textbooks or to those "ephemerides," tables of "houses," etc., which are your necessary tools if you want to cast horoscopes. There is also a mass of casebook material, including retrospective horoscopes of famous people or of other things such as the city of Rome or the German Republic. There are the stories of notable predictions, correct or incorrect, and the stories of notable astrologers who made a fortune at court or got themselves burned at the stake. There are great rivers of polemic, for and against, and there are lyrical or mystical effusions by people for whom astrology was primarily neither a science nor an art but a religion. There are allegories and plays and parodies, and, lastly, the descriptions of astrologers or their practices in non-astrological writings such as Chaucer's Canterbury Tales. The literature ranges from the cuneiform clay tablets of Ashurbanipal's library in ancient Assyria to the latest almanac, from St. Thomas Aquinas to newspaper columnists like Britain's Gipsy Petulengro, from the adverse philosophical analyses of Cicero in ancient Rome and Pico della Mirandola in Renaissance Italy to a knockabout parody entitled: Shinkin ap Shone her Prognostication for the ensuing year, 1654... Printed for the Author, and are to be sold at his shop at the Sign of the Cows Bobby behind the Welsh Mountains.

[^1]nater to tifftomelle grcuittinar

 Tufantif mour ys yntifis fy Ef war of nutying oftic leomer



nold


KOSMOBIOLOGIE


Authors from different times and countries will be quoted in the course of this book, often on particular aspects of astrology. At this point it may be appetizing, as a sort of hors d'oenves, to provide a few typical remarks made by writers on astrology in general:
(a) Astrology is the science and art of describing persons and events of the past, present, and future by correctly interpreting maps of the sky drawn up for the appropriate moments and places.
(b) The heavens don't affect our will . . . but they do affect our bodies.
(c) . . the foolish little daughter of the respectable reasonable mother astronomy.
(d) Astrology is essentially conservative (in the strict sense of the word), sedative, private, unsocial.
(c) I am convinced that the problem of the incqualities of the human race can only be succesfully solved by a knowl dge of astrology.
(I) At length I learned that wholly and altogether it was based upon no other foundation but upon mere triffes, and feimings of imaginations.
(g) If we listen within ouselves for a moment, then we can hear the breathino of planctary forms.
(h) There is some physical sympathy that makes earthly things depend upon celestial.
(i) . . celle chimère d'Astrologic.
(j) There's not even a blade of grass, however infinitesimal that is not ruled by some star.
(k) I believe God rules all by his divine providence and that the lars by his permission are instruments.
(l) Astrology stands first among those superstitions of which she is both mother and foster-child.
(in) From the scientific point of view there is litte hope of proving that astrological correspondence is something that conforms to law.
(n) Some astrologers say or write things afier the event and pretend they had predicted them beforehand.
(o) If astrology is true. why bother with anything clse?

These quotations, in the above order, ome from the fellowing array of authors:
(a) Rupert Gleadou;, already memioned, who seems (though he is very readable) to have stopped writing books about astrology.
(b) Marsilio Ficino, the founder of the Platonic Academy in 15th-century Florence.
(c) The pre-eminent 16 th -century astronomer Johannes Kepler, who cast horoscopes as part of his jol and made many confusing pronouncements on the subject.
(d) Tom Harrisson, founder of Mass Observation (a British sociological research organization, who wrote an article called "Mass Astrology' in the Briti h weekly paper . Vew Statesman in 1941.
(c) Alan Leco, already mentioned.
(f) Heny Comelin Agrippa, alseady mentioned, I6th-century France.
(g) Louis de Wohl, already mentioned.
(b) The Jewish philosopher Philo, who lived in Alexandria in the tume of Christ and made allegorical interpretations of the Old Testament.
(i) Voltaire, $18 \mathrm{if}_{1}$-century France.
(j) One Rabbi Eleazar quoted in the 13 th-century Eohur, a mystical work compiled by Spanish Jews.
(k) Willitm Lilly: already mentioned, 17th-century England.

1) Pico della Mirandola, late 15 th-century Italian humanist.
(m) The psychologist Carl G. Júng.
(n) Th $14 t h-c e n t u r y$ French mathematician and e clesiastic Nicole Oresme.
(o) An ancient Roman, abeut whom littl is known, named Arellius Fuscus.

The variety of the mames of hese authors is nothing to the names chat stud the average astrological textbook, some of which we too shall have to use more than once. Nam . like Mardukshakinshum and Adadshumusur Adam, Abraham Enoch and Solomon, 'echepso, Petosiris and Berosus, Nigidius Figulus and Hemes Trismesistus Alexander of Tralles and Isidore of eville, Alkindi and Albuma ar, William of Auvergne and Moes Mamonides, Marbod and Gerbent, Adelard and Abelard, Albertus Magnus and Guido Bonatti Madame Blavalsky and Baron Sobottendorff. Aso Raphael, Zadkiel. Sepharial, and Gabriel, whose real names were Smith, Morrison, Old, and Hingston. If this looks as forbidding as the New York telephone directory, it does at least (just like that dire tory) bear witness to the cosmopolitan chatacter of the suls ribers.

Such is the cosmopolitan and venerable background to all the goings-on of astrologers both big and little; to the Archbishop of York whose sudden death in his garden was attributed by his enemies to the book of astrology he had hidden under his pillow; to the egg, hatehed in Rone in 1680 with markings suggesting a comet, that touched off dozens of semons and sokemn thes $s$ in Germany" to such pronouncements as "All moles are the result of the influence of the plancts" or "A doctor witho astrology is like an eye that camot $s e$ " or "The Sun, Moon, and stars were created on Wednesday, April 22nd, 6 p.m., about 4002 years belore Christ" . 10 , in our own day, an astrological columnist in a Sunday new paper who an wers perionally 100000 letters per year; and also to certain German astrologers working out horescopes with the aid of eight hypothetical trans- deptumian planets that hardly anyone elsewhere has heard of. (In the L.S.A. ome astrologer have gone cuen lurther by postudating at least 18 unknown planets.)

But through all this great range from the sublime to the ridiculuus and underlyine all the variations, mystical or whimeal, ingenious or plain silly, wo things can always be found: a certain sanse of mstery, and a ertain hankering for harmony. Later chapters may indicate how taditional astrology originated with the first and attempted to satisfy the second.

## 2 Planets and personality

In a modern city we tend not to notice the stars. But even today, if we are alone in the country they almost fore themselves upon us, and they still excite wonder and a kind of distant affection. To the ancient civilizations, especially those that enjoyed clear skies, the stars were extremely familiar but also extremely puzzling. They were always there (or at least always returning), but with the exception of the two "luminarics"- the Sun and Moon-they never had any immediate effect that one could feel in the way one feels a change in the weather. You cannot grasp the rays of the stars in the way you can grasp any terrestrial obje $t$ animal, vegetable, or mineral.

There was another worrying thing about the stars. Most of them- the "fixed" stars-appeared vastly more stable and predictable than other natural phenomena. But a small minority seemed disturbingly wayward. These were the planets (the word omes from a Greek word meaning "wanderer'), which the Babylonians had called the "stray sheep." Sometimes they appeared to go forward, sometimes to go back, sometimes to stand still. It was probably in Mesopotamia that men first pondered the relations between the fixed stars and the straying ones and first thought that they affected human life.

So began astrology. Very early it had been noticed (especially by shepherds and navirators) that however the Sun, Moon, and other planets may seem to wander, they do not just wander anywhere in the heavens. They keep within a

[^2]
definite track, which eventually was called the Zodiac and di ided into 12 parts bearing the same names as 12 of the constellations. The ancients decided that the positien of the planets within the Zodiac at any one time must be what affected human beings. By the time of the Christian era the Roman poet Manilius could take as an established fact this significant interrelationship of planet and Zodiacal constellation (or "sign"):

No sign nor planet serees itself alone, Each blends the ofher's wirness wilh its own, Mixing their force, and interchanged they reign. Signs plants bound, and planets signs again.
It was some time before the 12 signs of the Zodjac were identified and named. But the planets-Mercury, Venus, Mars, Jupiter and Saturn-were known to everyone almost from the start. As, of course, were the Sun and Moon, which for millennia were also to count as planets. So before we consider the signs (which have been of great importance in astrology for at least 2000 years), it seems proper to look at the traditional pictures of the planets.

These pictures are highly anthropomorphic: 'Though some of the more sophisticated modern astrologers would like to explain this away as a convenient means of summarizing th planets effecs on human beings, even they rometines find thenselves talking as if the planets were human neighbors to be liked or admired or Ieared. The leading British astrologer Ingrid Lind writes: "I find that I come more and more to regard some of the planets at least as having distinct personalities.' She adds fon the assumption that each of us contains all the planets, rather in the way that eack of us contain the same set of organs) that the relationship beiween man and the planets resembles that between an actor and the various roles he must play": "If our Jupiter is w'at he must be rehearsed until the no longer spoils the part with illtimed buffooner:"
(Incidentally, because astrological books and authors are so numerous, and repeat each other so much, I shall be queting in this chapter and the next from only a few of them, selected on the sampling principle. One of them will be a 15th-century French work called The fialendar and Compost of Shepherds, which not only is a valuable source of traditional astrological thinking but manages to make the most ancient commonplace fresh. Ptolemy has proved useful. as have the 19 h-century anthorities, mentioned in Chapter 1, "Raphael" and "Zadkiel." Aside from these, my principal sonrces have been modern books by such astrological writers as Ingrid Lind, Margaret E. Hone. A. J. P"arce, Furze Morrish, Rupert Gleadow, and W. J. Tucker-many of whom were mentioned in Chapter 1.)

The names we use todiay for the planets are Latin god-name equivalents of the earlier Greck god-namos, whit the Greoks themselves had matched to the god-names of those pioneering stamazers the Babylonians. Thus Mercury is a translation of Hemes (the Bubytoniarn Nehol, Venus of Aphrodite (Ishtar), Mars of Nes (the red Nergal), Jupiter of Zens (Marduk), and Saturn of Kronos
(Ninib). One would naturally assume that Babyonians, Greeks, and Romans (and for that matter Egypians too) all called their plamets dfer their gods. But a lew astrologers maintain that it happened the othr way around; i.e., that a ertain planet was found to affeet peoples love-lives and that a goddess was then invented to represemt this planet and was called lshar or Venus.

Nevertheless, before the Greeks gave their planets the name of gods (whoms they had abteafy invented). they seem to have given them names derived from their vishbe haracteristics: Venus was the Dawn-hringet and Mars, betause of his red cotor, the Fiery One. It seems possibie that they changed to the godnames when they met with the astronomy-cum-astrolory of Bab ton. But perhaps after all we are not up against the old hen-and-egg dilemma (did god or planet come first?), be ause in carly cultures the distinctions wese often irrelevart. In Babylon some of the heavenly bodies arere grods-or should we say some of the gods were leavenly bodics? Or should we say eertain god ontroll d certain heavenly bodies? Anvisy, the great triad in that country was Sin the Moon-god (who was masculine and the nose powerfui), Shamash the Sun-god (feminine), and I latar, the goddes of love. ymbols of all three appear in stone carings from the 1 th century s.c.

This historical backgromd will be considered further in later chapt rs. Th imnediate business here is to introduce the cast, the broad lines of whose behavior have hardly attered for over 2000 years. And a very strong cast it is. As an English astrologer put it in the 17 th century, 'you must know that the seven planets are the seven rulers of the world. by hacir different natures, and are God's instruments." Among the ancients the normal order of the planets, based

A diegram of astrology's spherical universe.
The cetestial equator is an extension of the earth's equator ; the ecliptic is the apparent patn of the Sunthrough the sky withon the band of the Zodiac. The other planets atso eppear to travel more or less within the limits of the Zodiac.



The seven planets of traditional astrology as depicted in the 15 th-century French astrological work The Katendar and Compost of Shepherds. Eelow the planets are the 12 signs of the Zodiac as they appear in a 15 th-century edition of a ninth-century Arabian textbook. Each planet is said to "rule" two Zodiac signs (except the Sun and Moon, each of which rules one) : here the signs are shown in the same colors as their ruling planets.
on their supposed distance from the carth, was: the Moon, Mercury, Venus, the Sun, Mars, Jupiter, and Saturn. (There are inscriptions at Nineveh, hewever with the peculiar order: Moon, Sun. Jupiter, Venus, Saturn, Mercury, Mars.)

When astrologers say that someone is a typical Jupiterian or Martian or other type, they mean that he displays some or all of the qualities associated with the planet, and they assume that this planet was in some way dominant at the moment of his birth. There are various ways in which a planet achieves dominance: For one thing, each planet is the "ruler" of one or two of the Zodiacal signs. Thus Mars is the ruler of both Aries and Scorpio; if he is found in either of these at the moment of your birth, he will tend to make you not only more of an Aries (or Scorpio) type but more of a Mars type. (This applies whatever the position of the sign.) As will be seen in Chapter 3, the Aries man has much in common with th Lars man, just as the Leo man has with the Sun man, and so on. A planet has a similar (though lesser) effect if it is in a sign that is sympathetic to it. Technically, this is known as "exaltation"; Mars has his exaltation in Capricom.

Some other factors that enhance th power of a planet are the following: If a planet is fond at any of the four highly sensitive points in the heavens-the

ascendant, its opposite the descendant, the mid-heaven (M.C. or medium corli), and its oppo the the immo codi or I.C.-it will have something extra to say to you. So will a platet that is the ruler of the sign mising at your birth: If you have Taurus rising, Venus (the ruler of Taurus) will have nore strongth in your horoscope. The same is thue of a planet that is the ruler of your Sun-sign: Venus will again $b$ strengthened in your horoscope if you are "born under Taurus" by being bom between April 21 and May 21. SSerious astrologers, by the way, would not admit that this necessarily merits the label "bom under Taurus.") Lastly, a planet can become prominent or dominant in your natal chart if it is strongly "aspected " by other planets. But aspects are a complicated sulject that will be dealt with later.

All this should be enough to indicate that there is more than me way of becoming a "planet type" or of being "born under" any planet. The same is only too true of being "born under" any Zodiacal sign. And of course all the possible combinations and permutations that these factors supply not only give the astrologer a chance to show his skill but can also provide him with a let-ont if his predictions go wrong.

Now let us turn to the characteristics of the individual planets, taking the Sum first, since he is preeminem in modern astrology. (Though modern astrology is not anthropomorphic, I prefer to call the Sum "him," the Moon "her." etc., in accordance with mythologi al tradition and alo because. like Ingrid Lind. I am tempted think of the planets as having "distinct personalites"-which would obviously not be neuter.) For people who read only the newspaper "prediction" columns, the Sun-sign (i.c., the Sun's position in the Zodiac on the day of one'. birth) is the only thing in astrolory that matters. Even through the long geocentric ages (and astrology still carries on as if the Sun went around the earth) the Sun was always unique. Some of the ancient Romans called him "the chorus-master of the planets." The point does not need laboring; after all,
the Sun is something that hits you. The centuries-old Hermetic writings on astrelogy, alchemy, magic, and so on describe the stars as visible gods of whom the Sun is far the greatest. The Sun's astrological symbol, or hiergglyph, is a dat within a circle: The ircle is said to symbolize eternity or primal poser; the dot pinpoints the emergence of that power.

## Sun $\odot$

bcoording to the Pritish astrologer Margaret E. Hone. the "keywords" of the Sun (i.e. words that cxpress the asp ats of human personality conned d with the Sun) are power, witalit, and self-expression. In contrast with the Moon, who represents the female principle and the unconscious, the Sun stands for the male principle and consciousness. Tradtionally, he was neither a good planet like Jupiter and Venus nor a bad plane like Mars and Satump. He had something of bohh, like Mercury. On the oller hand. Indian astrotogers tend to consider him powerful but on the whole malefic. For them the un controls the heart and the Moon the mind; but the latter, luckily, is generally considered to be the more powerful.

The hatender and Compont of Shepherds describes the Sun as "a planet of great renown and king of all the planets . . . he is hot and dry of nature, and the plane satum is to him fall contary. is for his effects on human beings, "all men and women that be bom under the Sm be very fair, amiable of face, and their skin shall be white and tender. and well colored in the visage with a litle redness. . . . They shall be clean and good of faith and shall be governors of other people. . . The children that are born under the Sun shall desire honor and science, and shatl sing very pleasantly. And they shall be of comage good and diligent, and shall desire lordship above other people. . . . And of all the members in man's body, the Sun keeps the heart as most mighty planet above all others."

Polemy states that of the seven ages of man the Sun controls the fourth, from about 20 to $\frac{1}{6} 1$ (though other authorities apportion the ages differently). The Sun naturall : rules Sunday but, as the hours of the day were also shared out among the seven planes, on the Smos own day his particular hous were the first, eighth, fifteenth, and iwenty-second. The child in the womb was thought to be ruled by the Sun during the fourth month when the heart was formed. On the hand he rules the third finger. And Prolemy (who attributed diseases to the planets as well as to the signs of the Zodiart makes the Sun responsible for affictions of the sight, brain, heart, sinetw, and right-hand parts,

Toward the end of the ancient world, mustical thinkers made much of the strange behavior of the heliotrope, the plant that, like the sumfower. turns its flowers to the Sum. The fith-century Neoplatonist Proclus writes: "Thus the heliomope moves itself in so far as it i easy for it to move. and if one could only hear how it beats the air as it thm on its stalk, one would understand from this sound that is is offering up a sort of hym to its King, of uch kind of singing

Right. an engraving of the Emperor Napoleon (based on a painting by the Italian artist Toffanelli), Napoleon's personal power and energy would be ascribed by astrologers to the Sun's prominent position in his horoscope. The Sun is one "planet" whose traditionel astrological qualities have a factual basis: It is a source of life and power. Below. its energy is stored in a modern solar power station in Isracl.

as a plant can manage." This is one of the more obvious "correspondences" so nuch favored in the first Christian centuries and in the Middle Ages. Among the animals. exegetables, and minerals that the Sun rules are such obvious ones as the lion, the marigold. and gold.

But more important than the Sun's patronage of actual lions is his rulership of the Zodiacal sign Leo. The Sun and Leo both pull in the same direction and the account of the Leo type of man in Chapter 3 will fill out the picture of the Sun type. This means that if in your natal chart you are borm between July 23 and August 23 (which makes Leo your Sun-sign) and also born about sunrise (whieh makes Leo your ascendant, since naturally the Sun's sign rises when the Sun doss) your solar and for Leonine qualities should be doubled or more than doubled. Such a doubling-up is not necessarily an advantage, especially since the Sun is not neces arily a "good" planct. "Too much Sun," writes Ingrid Lind, "tends to make the individual overbcaring." She also points out that you can have too much Sun, regardlss of your Sun-sign or whether the Sun was rising or not, if there were at your birth too many planes in Leo (which is elways the Sun's own sign).

It has already been emphasized that no planet can be assessed as if it existed in a vacumm. Its influence varies according to the sign in which it is found. The textbooks say that th Sun in Taurus or Pisces makes you rather short, in Virgo or Sagitarius tall, while in Capricom he gives a "mean stature." But this material belongs more to the next chapter. Something else that affects the Sun's or any other planct's influence is the whole pattern of the sky-i.e., the aspectsat the monent of birth or any other moment of importance. The American astrologer iV. J. Tucker says that the Sun and Venus in conjunction lead to a "finely' poised character" both Chopin and Bernard Shaw were born under this conjunction) while the Sun and Jupiter in opposition or square (both bad aspects) lead to financial entanglements.

From very early times eclipses of the Sun were regarded as portents of great events, usually disasters. The same of course was true of eclipses of the Moon; Ptolemy attaches enomous importance to both. Now that mundane astrology is so much overshadowed by genethlialogy, astrologers tend not to bother so much with eclipses. When they do they prefer to deny, in the words of the late A. J. Pearce, that "the mere eclipse portends anything." What counts again here is the over-all picture, the relative planetary positions. Pearce instances an eclipse of the Sun visible in England on September 7. 1820, at a time when the bad planet Aars was nearly in opposition to the bad planct Saturn in Aries, the ruling sign of England. "Within a few months England was on the verge of revolution." Great stress was traditionally laid on where the eclipse itself takes place; Cor example, in Libra it might cause ecclesiastical schism while in Cancer it might make the fruit crops go bad.

Sun-worship-the exaltation of the Sun into the supreme deity (sometimes the only one)-has been common at various periods and in various countries.


Above, sunrise at England's Stonehenge, an ancient circle of stones probably used for Sun worship. In many past socielies. the view of the Sun as the most powerful of the planets (a view shared by astrologers) led to worship of the Sun as the supreme god. Elements of this warship sill survive today: Right. a participant in the centuries-old Swiss ceremony of goose-cutting (held every year at Lucerne) wears a Sun mask-perhaps a relic of some forgotten Sun ritual.


For that matter, in Baghdad about A.d. 900 there was a sect that prayed to the pirits of the planets. The ancient Persians sacrificed to the Sun; in Egypt as far lack as the second millennium b.c. King Akhenaton attempted to overtrow the longeestablished polytheism and substitute a monotheistic Sun-worship; and in the declining davs of the Roman Empire the Sun was proclaimed the supreme god on the Capitol. Of course, astrologers do not necessarily regard the Sun (or an, other heaventy body) in a spirit of wor: hip. There have been many astrologers who thonght of all the heavenly bodies as divine beings ; there have also been many who denied that they were anything more than inorganic objects. For all that, of the heavenly bodies that have been deified, the Sun (alias Sot, alias Helios, alias Shamash) takes first place. The only possible runnerup to him is the Moon, alias Luna, alias Selene, alias Sin.

## Moon D

The fast-traveling and ever-changing Moon traditionally and obviously stands for the female principle (in pite of the Babylonians, who curiously made the Moon malej. She brings on the lyrical vein in astrologers no less than in other people. Th" Anserican astrologer Evangeline Adams writes: "She is the lustral water and the mystic bearer of the Holy Grail.' In a different style the Falendar of Shepherds says: "Such men and women as be bom under the Moon shall be lowly and serviceable, and very gente . . and they shall be well fanored both man and woman. and their faces shall be full and round. . . . They hate lecheron talkers and speakers of ribaddry. . . . They shall glady go arrayed in many colored clothes, and they shall soon sweat in the forchead. Also they will have great desite to be masters and mistresses over great streams, rivers, and foods, nd shall devise many proper engines to take fish and to deceive them. . . . And the ligius and the brains of man are under the governance of Luna." The word hunacy. of course, cones from Luna; in the 16 th century, Paracelsus tanght that luracy grows worse at the full and the new Moon because the brain is themon of the microcosm.

In the Middle Ages, when some astrologer held that different historical period fell under the sway of different plancts, it was suggested that the Moon was in command when Sodom and Gomorrah were destroy d. This seems to fit with the Falendar's conception of the Moon as a patroness of hastity. But there are other facets of the lunar image. According to Raphacl, the Moon is espe ially responsible for rather low-grade persons and sailers, for amphibious animals, all shellfish, such birds as geese and swans. such plants as seaweed, melon, cu mber, and mushroom, and, among pla es, sewers.

The onnection with water is obvious: From early times men had noticed the Boon's effect on the tides. Menstruation was also (understandably) referred to the Moon. In more recent times a lunar periodicity has been observed in the belavior of land crabs, patolo woms, and certain sea-urchins. The Moon. like the Sun, rules only one sien-Cancer the Crab (which is a "watery" sign). At
one time astrological physicians advised that purges should be taken white the Moon is in a watery sign, the others being Scorpio and lisees. The Moon has also been held to be involved in mearly all cases of droming. And Rupert Gleadow writes that a dominant Moon may give you long, thin, damp hands.

Margaret Hone gives as the Moon's kevwords response and fuctuation. The Moon govens babyhood and is concened with the passions and emotions and also with changes in health. Unlike the Hindus. Western astrologers do not allow her control of the mind; for them the intellectual planet is Mercury. She is, however, of great importance if you want to marry.
W. J. Tucker assumes that the human character is threefold and gives its three components the somewhat abitrary names of "individuality", "personality," and "temperament." Individuality, he says, is the product of the solar position and is "superconscious" (Evangeline Adams once defined individuality as the thing we feel behind a handshake) : personality is of the lunar position and is subconscious; temperament is of the ascendant and is just plain conscious. The American astrologer Zoltan Mason states that the Sun represents your relationship to the divine spirt, the Moon your soul, and the ascendant your physical hody. Australia's Purze Morrish holds that the Moon represents the pull of matter (subconscious) and the Sun the prill of spirit ("superconscious" again). Anyhow, whether the Moon is linked with the soul or with matter, the subconscions character secmes to be a constant. So it is no wonder, in these days of prychoanalysis. that the Moon's position in the horoscope is considered by many astrologers to be almost equal in importance with the positions of the Sun-sign and the ascendant sign.

A "lunar" type as depicted in a modern French handoook of astrology. Such a childish "moon" iace with its innocens. naive expression can be (according to "physiognomical"astrologers) the result of the Moon's prominence in a horoscope.



Above, a 17th-century French engraving depicts the Moon's ravs affecting the minds of women. Astrologers may not be able to prove the Moon's effect on the mind, but they can show that it (like the Sun) has some influence on earthly things-for instance. on the sea. Right, a diagram shows how the Moon's gravitational attraction creates high tides: It draws up the sea at A leaving low tides an $B$ and $E^{1}$. Astrologers often go a step or two further and say (in effect) : The Sun and Moon affect the nature of the earth, so it is likely that they also affect peoples' natures. And if this can be said of the Sun and Moon. why not of the other planets as well?


Once again it is the over-all pattern that has to be considered. Tucker explans that, while the Moon in Gemini gives you the peronality of a very su cessful commercial traveler (which seems to imply that what makes a alesman is the subconscious), the Moon in Capricorn will make you very disagrecable if you don't control yourself. Napolcon, he adds, had the Moon in Capricom. The Moon in Scorpio is generally considered dangerous or undesirable, while the reason that Shakespeare did not invent his own plots (according to Evangeline Adams) was because he had his Moon in Taurus. As lor aspects, the Sun and Moon in sextile or trine (both good aspects) are supposed to help you to get what you want, though perhaps you will get it too early.

The Moon's connection with health has always made her prominent in astrological medicine. The l7th-century English satirist Samuel Butler, in his burlesque poem Hudibras, caricatures William Lilly (the most famous astrologer of the day) as one who
. . with the Moon was more familiar
Than e'er was almanack well willer.
Her secrets underslood so clear
That some belicued he had been there, $h$ new when she was in fittest mood, For cutting corns or letting blood. When for anointing scabs and itches,
Or to the bum applying lecches;
When sows and bitches may be spayed,
And in what sign best cider's made. . .
It is quite clear that in Butcr's and Lilly's time many people did take the Moon into account when going about their houschold business. But other people fiew higher, into more nebulous realms. A treatise in 1652 explains how "to extract a white milkie substance from the raies of the Moone." All you need is a glass and a sponge; but it is not clear what you do with the substance when you have it. In all such practices the phase of the Moon was always of utmost importance. In the Hermetic: writings the peony is assigned to the Moon as one of her special plants; we are told that it grows as she waxes and wilts as she wanes. If you are going to use this flower for medical or magical purposes you must pluck it while the Moon is waning. On the other hand, the American astrologer Max Heindel held that surgical operations should be performed when the Moon is waxing, And medieval alchemists had found their experiments were more successful when the Moon was both waxing and ascending.

The use of the Moon in astrological medicine or magic had most respectable precedents. In Constantinople in the sixth century A.D. a physician at the court of the Emperor Justinian recommended that gout could be cured by inscribing a verse of Homer on a copper plate when the Moon is in Libra or Leo. In the Renaissance it was thought that dreams come true when the Moon is in any of the four "fixed" signs-Taurus, Leo, Aquarius, and Scorpio. The idea that the

Moon is concerned with diseases of the stomach, the womb, and "all left-hand parts" goes back to Prolemy. And in relation to the four-temperaments or "humors" or "complexions," she was connected by some with the melancholic (though more usually that humor belonged to Saturn).

So much for this "subconscious" lady. Let us now tum to a planet who, if anything, is almost too conscious. His hieroglyph is equated by some astrologers with the caducems, the wand that was always carried by the rod Mercury (or Hermes) in his double role of divine herald and conductor of souls to the underworld.

## Mercury ${ }^{\text {© }}$

"The fair planet Mercury," says the Fialendar of Shepherds, is "very full and dry of nature" and is "lord of speech, as the Sun is lord of light. . . . Who so is born under Mercury shall be subte of wit . . . [that is, and always has been, Mercury's first characteristic] and shall be very crafty in many sciences. . . He shall ever follow and reson to them that be of good manners, and shall be fortunate on the sea to use the course of good merchandise." Mercury is the traditional patron not only of intellectuals but of merchants. He is also the patron planet of transport.

But the liferury man, according to the Kalendar, will not have it all his own way. "He shall be very gracious, and he shall have harm by wonen, and when

## CHEQUES DF VOYAGE B.N.C.I.

 SECURITE... COMMODITE SE
he is married, men shall not set so much by him as they did before." All the same, 'he will have great love to ladies and gemlewomen, but yet they shall not be masters over him. He will be a very good man of the chur h or a religious man, and he shall not love to go to a wariare. . . He shall love well to preach and to speak fair rhetoric language, and to talk of philosophy and geometry."

The Finlendar details other intellectual, artistic and ommertial activities and ends: "He shall be sraam to some grat lord or else a receiver of his money." (The original god Mercury himself had been something of a lackey on Olympus, always running errands for the greater gods.) "He shall have a high forchead, a long visage, black eyes, and a thin beard. He shall be a great pleader in the law, and will meddle with other men's deeds if they do not well and say against it."

There has been general agreement that Mercury stands for the intellect and for most types of communication, whether mental or physical. Not surprisingly, however, he is undependable; astrologers have named him "the chameleon among planets" (ompare the adjective "mercurial") and have explained that he is neural because, in the aspects, he take color from other planets but does not give color in return. This idea goes back to Ptolemy, who says that Mercury is "generally speaking in nature like whatever of the planets may be associated with him." By Polemy's time he was also fimaly established as the suler of two signs, Gemini and Virgo. Rupert Gleadew, who calls him a "sexless plane," points out that both these signs are "somewhat lacking in emotion."

The Russian writer Leo Tolsioi (1828-1910). right, typifies the great intellect and powers of expression that are among the qualities associated with the planet Mercury-the ruler ai Tolstoi's Sun-sign, Virgo.

Left, the Romangod Mercury, in a French bank's advertisement for travelers" checks. In boah mythology and astrology, Mepcury is considered to be the patron of commerce and ransport: Thus the two roles here symbolized by the god are equally sypical of the planet.


Mercury can make you a genius; he can also make you a crook. The original god had been both, as is shown by the early Homeric Hymn to Hermes, in which he is described (in Shelley's translation) as

A schemer subtle be yond all. belief;
A shepherd of thin dreams, a cow-stealing,
A night-watching and door-waylaying thiel
who yet, while still an infant, went on to invent the lyre, killing a tortoise to use its shell for the purpose. An English earl in the reign of Elizabeth I cited this traditional idea of crookedness to bolster up his attack on astrology in general, taking Mercury's influence as an example of unjust determinism: "If by nature no man ought to spoil or rob another, how cometh it to pass that Mercury, disposed thus or thus at the time of our birth, enforceth theft?"

In the field of diseases Mer ury has been held responsible for ailments both of speech and of thoughe and for troubles in the bile and the butto ks (or, as Pearce puts it, "maria, apoplexy, convulsions, impediments of speech, coryza, and dry cough"). His day is Wednesday (French mercredi, Italian mercoledi) and, according to Polemy, in any man's life he rules the period from four to It when education is mot necessary. Mercury's finger is the little finger, and physiognomical astrologers allot him the bridge of the nose. Three lines on the bridge of the nose denote eloquence and wit; more than three denote loquacity and deceit.

The planet Mercury, like Vemus, owing to its actual nearness to the Sun, is always seen from the carth as lying in a ign near the Sun. Consequently Mercury and Venus are comparatively often found in conjunction. In spite of the (requency of such conjunctions an 18th-century English astrologer, Ebenezer Sibly, used one of them (retrospectively) to explain the French Revolution: "The active position of Venus and Mercury, conjoined, denotes much restlessness and instability in the councils of France which seem distracted by the arbitrary will of the Gallic Queen, here represented by Venus, upheld and assisted by light, volatile, time-serving men, pre-noted by Mercury."

Similarly, Raphael says that Mercury is concerned among human beings with philosophers, secretaries, merchants, teachers ambassadors, "and all ingenious clever persons" (with whom Raphael includes astrologers) but also, when he is in a wrong position, with thieves. Among the beasts of Mercury, Raphael continues, come "all such as are of quick sense, ingenious, inconstant, and swift; also such as are easily taught by man," including the ape, fox, weasel hare, squirrel, hyena, and spider. Amono fishes there are "the mullet and all swift reptiles"; among birds "all those that are naturally witty and inconstant," like the nightingale, blackbird. parrot, swallow, jay, and jackdaw; among places schools, tennis courts fairs, markets, bowling greens, libraries, and countinghouses. According to modern astrologers, Mercury is also the ruling planet of the telephone system, radio, and other means of communication. Altogether a versatile, volatile planet.

As for aspects, it is generally considered that Saturn, having s: ha different and therefore complementary nature, is the hest influen e on Mereury. Sathm also has a steadying effect upon the next $\beta$ l net to be -onsidered.

## Venus 8

henus, whose heroglyph is us in zoology to indi ate that an anmal is female, is a good and benefient planet but does not always make a character strong. In ancient Babylon, under the name of lshat (goddess of lovel, she was the most powenful heavenly body after the Sun and Moon and her eighe-pointed star is often found carved on the Babylonian boundary stones. . he was traditionally known as the "lesser fortune" "Jupiter, another beneficent planet, was the "greater forture"). She governs adolescen e and is the giver of harmony, being especially influential in personal relation hips and (more surprisingly) in money matters. Evangeline Adams holds Venus liable to produce "the dilettantes of the world"; she can make you graceful or lazy, gentle or indecisive. This is where Saturn is needed. As Pearce puts it: "If Vemus be afficted, there is a tendency to dissipation. A friendly ray of Saturn to Venus is excecdingly useful in steadying the character."

Her signs are Taurus and Libra, and she is very closely connected with the malefic Mars, as she was in mythology with the god of the same name. (Homer


A 15th-century woodcut depicting


A third-century B.C. statue of the ancient love goddess Ishtar. who was identified by the Babylonians with the planel thet we know today as Venus.


The French actress Brigitte Bardot. whose film roles have made her one of the modern world's "love goddesses"-and whose Sunsign is Libra, a sign ruled by Venus.
tells a story about them being caught together in a net.) Mars stands for sex where Venus stands for love: if they are in a good aspect to each orher, it bodes well for any lovers who arc concerned. If they are in a bad aspect, then don't do it!

Raphael assigns to Venus "all such animals as are amorous in nature." such as the swan (which he also gives to the Moon), kingfisher, swallow, turtledove, lobster, salmon, and dolphin. Her flowers include the violet, rose, and lily, and she also rules many fruit trees. Among winds hers is the south wind, and her day is Friday (iendredi,wenerdi.etc.). Pliny, the Roman author of the Natural History, thought that this planet had a direct influence on terrestrial beings through scattering some kind of genital dew. According to the textbooks she can (as one would expect) make you vcry beautiful, but when she appears in some of the signs she does nothing of the sort. Pearce writes that Venus in Capricorn "gives but a mean stature, pale sickly complexion, face thin and lean, hair dark or black." (In Pearce's discussion of hair color, Venus provides a good example of the variations caused when the same planet is found in different signs: The score seems to be three to four real blondes, three real brunettes. the rest in belween.)

As usual, Venus and "her properies" are most sympathetically described in the Kalendar of Shepherds. She herself is "the gentle planet Venus, and it is a planet feminine, and she is lady over all lovers." As for her properties, the man or woman born under Venus "shall be a very gay lover, pleasant and delicious, and most commonly they shall have black eyes and little brows. red lips and chests [cheeks?], with a smiling cheer. They shall love the voice of trumpets, clarions, and other minstrelsy, and they shall be pleasant singers with sweet voice . . . and shall greatly delight in dancing and gambols with leaping and springing, and will use playing at the chess, and at the cards and fables, and desire oft to commune of lust and love. and covet of sweetmeats and drinks as wine and be oft drunken, and oft desire lechery and the beholding of fair women, and the women of men in likewise, and use fleshly lust oftentimes."

The Venus types, as here described, seem lo be more sensual than in modern astrology, where sensuality comes rather from Mars. But the sensuality of the Kalendar Venusians is not of the violent "dark god" type. The passage continues: "They will desire fair clothes of gay color and fine with rings of vanity, and all vain pleasure of the world, with fair and rich clothes, and pelts and precious stoncs. They shall love flowers with sweet smells. Yet shall they be of good faith [italics mine], and they shall love others as well as themselves. They shall be liberal to their friends. They shall have few enemies. If they be brown [of face] they shall be well proportioned of body. If they swear it is true, ye may believe them. And Venus governs the thighs of man." Easy on the eye, as they say, but also nice to know. The Kalendar writes very differently of Venus's opposite number, Mars, whose very hieroglyph is the opposite of hers, a symbol of male aggression.

## Mars o

"This planet Mars is the worst of all others, for he is hot and dry, and stirs a man to be very wilful and hasty at once, and to unhappiness. . . . He causes all wars and battles. . . ." After stressing the old war-god character of the planet (in Homer Ares had been a most disagreeable god), the Kalendar comes on to the man born under Mars who "in all unhappiness is expert. He shall be a nourisher of great beasts [this would suggest violent stallions, bulls, and maybe bear-baiting dogs of the mastiff variety]. He is full of malice, and ever doing wrongs. Under Mars are born all thieves and robbers that keep highways and hurt true men, and night workers. quarrel pickers, boasters, and scoffers. And these men of Mars cause war, murder, and battle. and will gladly be smiths or workers on iron, light fingered and liars. . . . [The Mars man] is red and angry with black hair and little cyes. He shall be a great walker, and maker of swords and knives, and shedder of man's blood, a lecher and speaker of ribaldry, red bearded, round visaged, and good to be a barber and letter of blood, and to draw teeth, and is perilous of his hands. And he will be rich of other men's goods." In fact, as we should say now, a very fine specimen of an extravert. (In ancient times the planet seems to have been also identified with that notable performer Hercules.)

This is the traditional Western picture of Mars and the Mars man. But il should be pointed out that in ancient Egypt the planet was called Horus-the

red Horus. This fact is used by the modern scholar Robert Eisler in The Royal Art of Astrology, a book that is violently hostile to that art; lijsler makes the point that Horus, in whatever form, was a favorite figure in the Egyptian pantheon, so there could not have been any question of turning him into a "malcfic." Modern astrologers do not try to make Mars good but at worst they regard him as a necessary evil. Without him no one would have martial qualities, and no one would be cither feared or loved when he wanted to be.

Margaret Hone gives as his keywords energy, heat, activation. The two signs ruled by Mars-Aries and Scorpio-both show the same dangerous energy. In Ptolemy's queer scheme of things, in which different countries were governed by different planets and signs, both Gaul and Britain were closely linked with Mars and Aries. "For the most part," writes Ptolemy, "their inhabitants are fiercer, more headstrong and bestial" than other people. Fairly recently a French astrologer who called himself "Papus" explained the English character by the fact that England's ruling planet is Mars and her national sign "the monstrous sign of Aries" : The pure English type, the "John Bull," was according to Papus essentially Martian. But he wrote this while that type was still comparatively common. Nelson, who was not a John Bull but who certainly was successful in battle, was born with Mars rising in the second Martian sign of Scorpio. The great German soldier Wallenstein, one of the heroes of the Thirty Years' War and himself a devout believer in astrology, seems lo have regarded this planet

Left, the great British military leader Field Marshal Lord Montgomery signs the terms of surrender with Germany in May 1945. Astrologers would attribute his military success to the favorable influence of Mars, which is the ruling planet of England and of Montgomery's Sun-sign, Scorpio. Right, an artist's impression of somequitecontrasting Mars attributes: The features express the fierceness and brutality that are said to result from the planet's adverse influence in a horoscope.

as his patron ; at any rate, this is suggested by a ceiling fresco in Prague entitled "The Triumph of Wallenstein."

Raphael, as usual, outlines the chief spheres of the planet's influence : Mars is concerned not only with military men but with surgeons and barbers and "all such as use implements of a sharp nature, all trades wherein fire is used." The creatures proper to him include the "mastif", wolf, tiger, panther, and all such beasts as arc ravenous and bad," also sharks and "all stinging water serpents and hurtful fish," and, needless to add, all birds of prey. His plants include thistles. brambles, nettles, ginger, pepper, garlic, "and all trees that are thorny or prickly." Among his minerals are bloodstone, asbestos, iron, and brimstone, and he is the patron of such places as furnaces, distilleries, and butchers' shops. His day is Tuesday (mardi, martedi, etc.), which in the Middle Ages was considered the best day for blood-letting.

Ptolemy points out that Mars dries up rivers and causes the loss of crops. A maleficent planet, Ptolemy also explains, causes injuries when it is rising as distinct from diseases when it is setting. As regards diseases, Pearce (who was strongly opposed to vaccination) slates that unless Mars afflicts either the ascendant or the luminaries "ihere is little if any liability to take smallpox." Traditionally, Mars was known as the "lesser infortune" and Satum as the "greater infortinc." (Saturn was always considered the most powerful of the planets.) Of these malefics, Saturn's effects have been compared to a consumption, Mars's lo a fever. Inevitably, the relations between them are to be watched. Mussolini had them in conjunction, Hitler in square, and Goering in opposition. It is a relief to turn from these infortunes and attend to the "greater fortune."

## Jupiter $\&$

Jupiter is the tycoon planet and it is after him, since he is also known as Jove, that people are described as jovial. His keywords are expansion and preservation ; Papus describes him as "un melange de pere, de patriarthe, et de roi." Mythologically. of course, Jupiter (the Greek Zeus) had been the king of the gods, as had Marduk at one time in ancient Babylon. The great 13th-century Dominican doctor Albertus Magnus argued that the pagan assignment of the thunderbolt to the god Jupiter was a mistake due to the influence of the planet Jupiter in bringing about thunderstorms. (Dominicans could not accept the pagan pantheon but some of them could accept astrology. And, astrologically, they regarded Jupiter, together with the Sun and Mercury, as one of the planets who patronized the Christian religion.)

In spite of Albertus Magnus and others, the traditional character of this planet continues to remind us of the old Greco-Roman father figure who would have been so at home on any board of directors or in any senate or country club. Of all "lucky stars" he is the most patendy lucky. He can see through illnesses and he can help you to survive disasters. He is rather like those good old rich men in Dickens. This "noble planet," says the Kalendar of Shepherds, "is very


Pope John XXIII (1881-1963). Jupiterwas a strong influence in the pope's horoscope, since it rules his Sun-sign, Sagittarius, and was at the mid-heaven at his coronation in November 1958. And the pope's career reflected Jupiter's astrological association with patriarchs and ecclesiastics.
pure and clear of nature, and not very hot, but he is all virtues. And there are fixed in Jupiter two noble signs of love; the one is Pisces and the other is Sagittary, signs of no evil nor unhappiness. This planet may do no evil ; he is best of all the other seven. He keeps the liver of man and maintains it joyously."

Whether he can do evil or not, Ingrid Lind and oilier astrologers admit that he can cause boredom or embarrassment. The Jupiter man tends to get things too easy, to lalk too big, to deceive himself. The Kalendar is unaware of these dangers and portrays the Jupiter man as a model of physical cleanliness, virtuous living, and good clean fun. It is not suggested that he has much intellect but "he shall be a fair speaker and say well behind a person. He shall love green color and grey. He shall be very happy in merchandise, and shall have plenty of gold and silver, and he shall love to sing and to be honestly merry. And of the man he governs the stomach and the arms."

On the other hand. Raphael makes Jupiter responsible for quacks, cheats, and drunkards-but only when he is weak in the chart. Wher he is strong, he produces men like judges and archbishops. His beasts include "generous crea-
tures of most descriptions" and his places include palaces, courts of justice, and wardrobes. Pearce assigns to him not the stomach and the arms but "the lungs, the blood, and viscera." Some astrologers say that the typical Jupiter sins are more of omission than commission. Furze Morrish suggests that the proper "sublimations" for Jupiter people are "religious methods and philanthropy, ranging from conviviality to devotion." As to his aspects, Jupiter in square with Mars will exaggerate the Martian effects. And throughout history special importance has been attached to the "great" conjunctions of Jupiter and Saturn, that cold old planet who is our next subject.

## Saturn $力$

Until fairly recent times Saturn was the most distant of the known planets. His distance made him seem both slow and cold and these qualities were enhanced by the traditional character of the god Saturn (the Greek Kronos) who got identified with Chronos-i.e., Old Father Time-scythe and all. (In the Middle Ages, Saturn was said to carry a scythe or a sickle because he does more execution when receding than when advancing.') And just as Kronos, before Zeus, had been king of the gods, so Saturn in many times and places was thought of as the most powerful single planet-perfaps because he was a notorious malefic. The Roman historian Tacitus wrote that "of the seven stars that rule human affairs Saturn has the highest sphere and the chief power." Like many of the ancients and their successors, Tacitus would have assumed that the highest sphere (i.e., the greatest distance from the earth in the center of the system) actually conferred the chief power.

Saturn is the governor of old age and his keyword is limitation. He is essentially cautious; even the ancient Babylonians called him the "steady one." (He is the ruling planer of Scotland.) As far back as Tacitus, Saturn was considered the planet of Judaism : Tacitus uses this to explain the Jewish observation of the Sabbath, which was also Saturn's day. In the Middle Ages the famous Scottish astrologer Michael Scot, contrasting him with Jupiter (the patron of true believers), points out that Saturn is the patron of pagans and Jews, who are as slow to believe as the planet is slow in getting about the sky.

Raphael's description of Saturn was quoted in Chapter 1. The Kalendar of Shepherds is equally eloquent: "When he reigns there is much theft used and little charity, much lying, and much lawing one against another, and great prison-

[^3]
ment, and much debate, and great swearing. . . . And old folk shall be very sickly, and many diseases shall reign among people, and specially in the chief hours of Saturn. And therefore this planet is likened to age, as hard, hungry, suspicious, and covetous, that seldom is content with anything. For Saturn is enemy to all things that grow and bear life of nature, for the cold and stormy bitterness of his time." Where Venus and Jupiter are warm and moist. Saturn is traditionally cold and dry and so is linked with the humor of melancholy. According to the ancient Hermetic books, his plants include the asphodel and the house-leek.

The qualities assigned by the Kalendar to Saturnian types seem an odder mixture than with most of the other planets. "He that is born under Saturn shall be false. envious, and full of debate, and full of law. And he shall be cunning in curing of leather, and a great eater of bread and flesh. And he shall have a stinking breath, and he shall be heavy, thoughtful, and malicious; a robber, a fighter, and full of covetousness: and yet he shall keep counsel well and be wise in counseling, and he shall love to sin wilfully." Not all these traits seem in keeping with the planet of old age and caution. No more does what follows : "He shall be a great speaker of tales, jousts, and chronicles. He shall have little eyes, black hair, great lips, broad shoulders, and shall look downward. He shall not love sermons, nor go to church."

The Kalendar goes on to recount how vindictive Saturn people are and how "cold in charity." Their favourite color, of course, is black. Much of all this is derived from Ptolemy, who also noted that Saturn makes you hairy-chested, but only when he is rising. In Hindu astrology the planet is given an equally gloomy character: He is personified as lame, clothed in black, with long nails and teeth, and "skilled in all kinds of wickedness." In spite of this bleak picture, Saturn, like Mars, is needed in the heavenly kaleidoscope. Ingrid Lind (who presumably would not accept the more lurid details in the Kalendar) writes: "A person with a good Saturn is like a plant with sound roots."

In the Middle Ages Saturn was much connected with magic. Some even thought that for magical purposes he was more use than the Moon. On astrological images (small amulets inscribed with astrological symbols and designed to do the wearer good or his enemies harm), Saturn was represented as a man riding a dragon, holding a sickle, and dressed in black or a panther skin. What powers were attributed to him are shown by the remarks of a 13th-century bishop of Paris who was extremely interested in astrology but would not go so far as to admit "what is so celebrated anions the astrologers . . . viz.. that a statue will speak like a man if one casts it of bronze in the rising of Saturn."

In Renaissance Florence the scholar Marsiiio Ficino (a protege of the Medici family) worked out his own doctrine of melancholy-the saturnine humor-as the one of the four lumors that most influenced intellectuals. In fact he tried to turn Saturn into a good planet and was proud that it featured largely in his own horoscope. Kepler also had Saturn prominent in his horoscope: skeptical
though he was about the practices of astrologers, he could write quite seriously: "With me Saturn and the Sun operate together: therefore my body is dry and knotty; not. tall. The soul is faint-hearted, it hides itself in literary nooks; it is distrustful, frightened, seeks its way through brambles and is entangled in them. Its moral habits are analogous." One more historical example: In the 17th century William Lilly described the hard-drinking Welsh clergyman who had taught him astrology as "the most Saturnine person my eyes ever beheld . . . seldom without a black eye."

Saturn's Zodiacal signs are Capricorn and Aquarius. Pearce, in supplying his usual catalogue of the effects of the planet in all 12 signs, finds few in which Saturn makes for an agreeable temperament. Of his own signs, Saturn in Capricorn is most unfortunate, but in Aquarius, apart from crooked teeth, he gives you a mens sana in corpore sano. Of the others. Satum in Aries makes you "quarrelsome, fretful, and austere," in Taurus "avaricious, secretive, and envious," in Gemini "perverse, selfish, and austere," and so on. A notable exception is Saturn in Sagittarius, which makes you "affable, obliging, generous, honest. and upright, merciful lo an enemy, and constant to a friend, profuse in promises through excess of good nature."

Other astrologers are more ready to recognize the helpful side of Saturn. Evangeline Adams writes: "The Saturn position of any man represents his wisdom; that is lo say, his innate and accumulated experience." She instances

The Russian leader Joseph Stalin (18791953). whose Sun-sign. Capricorn, is ruled by Saturn. Many astrologers have called Stalin typically "saturnine," pointing out that his personality seemed to reflect the planet's astrological narure-somber. melancholy, and suspicious.


Gladstone and Wood row Wilson as Saturnian types and also notes that selfmade persons often come under Satum. The 19th-century German astrological writer Countess Wydenbruck gives as Saturn characteristics "selfishness, reticence, diplomacy" and "disappointment, delays, constriction in every respect," and then adds "hard work and perseverance."

In the matter of aspects, where Jupiter tends lo exaggerate, Saturn tends to limit or devaluate. Venus is the planet of personal relationships, but Saturn in too close conjunction with her will limit your power to make friends. Tucker maintains that while Saturn in sextile or trine (both good aspects) with the Sun will make you philosophize, Satum in sextile or trine with Jupiter can contribute to genius-as with Bismarck and Dickens. More important still is Saturn in conjunction with Jupiter, which can lead to outstanding genius as with Shakespeare and New ton: but this same conjunction can also cause frequent attacks of gloom. Morrish points out that Saturn, who is especially concerned with the mineral kingdom, is the planet you want in the second house (the house, among other things, of finance) if you're after a mining contract.

For millennia Saturn was the farthest planet known to astrology or, for that matter, to astronomy. Then in 1781 LJranus was discovered. The impact of this most startling event will be discussed later; here we may confine ourselves to his characteristics, which have gradually accrued to him through the observation (or invention) of astrologers.

## Uranus 'ภi

As has been observed by modern astrologers, the hieroglyph for Uranus looks like a television aerial, and they have now agreed that among other things he stands for mechanical inventiveness. Louis de Wohl (who was mentioned in Chapter 1) goes so far as to attribute the inventions of World War II-including radar, penicillin, V-1s and V-2s-to "Uranus running amuck," adding that his worst but perhaps most typical invention was "that dreadful super-Uranian thing made of uranium 235-the atom bomb." (Some astrologers, however, blame the bomb on Pluto.) He is also held responsible for the Industrial Revolution with which, some say, his discovery more or less coincided.

He is also regarded as the planet of rebellion and eccentricity; but, because it takes him seven years to pass through a single sign of the Zodiac, most astrologers agree that his influence falls on generations rather than on individuals. Pearce, however, holds that he can be very powerful in nativities when in aspect to the Sun or Moon, and attributes the mistakes made by earlier asirologers to their ignorance of his existence. He considers LJranus "very inimical to conjugal happiness" but admitted that there was not really as yet enough evidence about him.

Raphael (writing at a time when Uranus was still called "Herschel" after his discoverer) describes his effects as "truly malefic." The first Zadkiel, though also considering him more potent for evil than for good, adds that he might

Some astrologers regard the planet Uranus as the patron of the heavens (relating il to the Greek sky god Uranus); others connect it with mechanical invention. Right a 16thcentury German woodcut shows that these two ideas were linked long before the discovery of the planet Uranus: A curious human peers through the vault of the universe and sees the mechanism that moves the stars. Another "heavenly" mechanism is the steam engine (below right), driven by two wheels called "sun and planet wheels." This machine was patented by the British inventor James Wan in 1781 - the year that Uranus was discuvered. Below left. Russia's Yuri Gagarim, the first astronaut The date for his llight into space (April 12. 1961 ) was favorable in astrologers' terms-partly because Uranus and the Sun were in trine (which is regarded as a good aspect).

lead to a "great love of truth." But Zadkiel makes no mention of machinerynor of democracy, with which some modern astrologers associate Uranus.

But even now astrologers seem in considerable disayremment about this planet. Some make him (like Neptune, the next planet to le: discovered) a patron of things occult. An American astrologer at the end of the last century noted that the planet "lorded it in the ascendant at the birth of Mrs. Annie Besant" (who was the second president, after Madame Blatatsky, of the British Theosophical Society). Furze Morrish (who is himself much influenced by theosophy), in calling for a "World Aristocracy of Integrated Minds," wants as his pioneers men like Franklin D. Roosevelt in whose chart Uiratns is positively emphasized. But, he adds, this could hardly happen under the "democratic" electoral system.

On tje other hand, Rupert Gleadow insists that Uranus is a supporter of democracy. (His anthropomorphic account of the struggle between Uranus and Saturn for the rulership of Aquarius will be summarized in more detail in Chapter 6.) His point is that Aquarius represents the ordinary man and that Uranus by rights should be his ruler since Uranus represents, among other things, international collaboration and the brotherhood of man. On the same assumption, some astrologers have entitled LJranus "the emancipator." Ingrid Lind rather hedges her bets by associating this planet with "change (revolutionary, disruptive, dictated)." Most astrologers would agree that he is concerned with change; the question is what kind of change. Gleadow is banking on a change in the right (i.e., truly democratic) direction and therefore opposes LJranus not only to the repressive Satum, but to the mysterious and sinister Neptune.

## Neptune $V$

According to Gleadow, Neptune stands not only for sensation but for "the absorption of the self into something great and wonderful"-such as modern dictatorships. Margaret Hone and Ingrid Lind give as his keywords nebulousness and impressionability, which might possibly have applied to the Nazi masses but do not seem to fit, say, the Soviet Union or Communist China. On the other hand, Gleadow considered Hitler a typical Uranian, which makes it the more confusing when he lines up Neptune with Saturn against Uranus. We can sympathize with Zadkiel who wrote soon after Neptune's discovery : "Nothing has been satisfactorily proved as to the nature of this planet, astrologically, hitherto." He added (rather surprisingly, since Neptune was also the Roman god of the sea): "So far as we know, he seems to be dry, warm, and genial, or of fortunate "influence'." But later astrologers, agreeing that nothing has been proved about the planet's nature, have not endorsed this individual view.

Countess Wydenhruck includes among Neptunian characteristics emotional genius and mysticism and. "if badly aspected, drunkenness, drugs, fraud." Ingrid Lind, who suggests that with slow-running planets the transits are the things to look for, notes that Neptune's transits lead to muddle, and adds: "It really takes a strong and sane man to control the Neptune in him." It must be remembered that it takes this planet 15 years to pass through one sign, and that neither he nor Pluto can get around the Zodiac in an individual's lifetime. As Evangeline Adams put it, he has more to do with the Zeitgeist than with individuals. She suggests that, historically, Neptune in Leo may have been responsible for national revolutions, in Virgo for great lawgivers, and in Sagittarius for artistic revivals or new ideas in religion. Furze Morrish, who assigns the five senses to the five "older" planets, connects both Uranus and Neptune with extrasensory perception (E.S.P.).

Margaret Hone, thinking of Neptune's nebulous character, points out that he was discovered in 1846, the same year in which ether was first used in surgery. She also connects his discovery with the introduction of gas lighting. As with

Gleadow's remarks about Uranus, many people may fail to see why the discovery of a planet should be responsible for anything. One possible answer available to modern astrologers lies in the suggestion that the time was ripe for both the discovery of Neptune and the first use of ether and gaslight.

Some astrologers (rather obviously connecting the planet with the god) would like to transfer to Neptune the rulership of Pisces, which traditionally belongs to Jupiter. Some, apparently also working by association of ideas, attribute to him occupations to do with the sea (which Raphael had given to the Moon). In the same way Pearce, not having had long acquaintance with Neptune, is cautious about him, suggesting that he might give one a bent for foreign travel. As for the qualities of sensationalism and nebulousness and mysticism and mediumism and so on, these too may well have been suggested to astrologers by the enormous distance from us of this pianet and by the mere chance of his name. (On this second point, however, some astrologers are capable of replying that the planet himself-or perhaps the whole starry set-up-imposed the inevitable name upon the people who thought they were inventing it.)

Russian revolutionaries in 1917 firing on their tsarist enemies. Although astrologers disagree as to the spheres of Neptune's influence, some have suggested that this planet in Leo causes revolutions. The slowmoving Neptune was last in this sign at the time of the Russian Revolution.


Whether Neptune himself is as eccentric or not as they say he is, he certainly seems to make some human beings so. Max Heindel, wanting to equate the planets with "the seven spirits before the throne of God" (excluding the Sun and Moon, which the ancients had counted as planets, but including the earth and LJranus), disposed of Neptune by stating flatly that be "does not really belong to our solar system." What is Neptune then? Answer: "The embodiment of a Great Spirit from the Creative Hierarchies which normally influence us from the Zodiac." This was written in 1919. Today Furze Morrish, whose bugbear is jazz, assumes that Neptune of all planets is the one to remedy this: With his entrance into Libra (which of couse represents balance) we may find, he hopes, "a change from the abominable, destructive, and maniacal type of music." He even adds optimistically: "Ugly music could be banned."

That leaves us with little far-flung Pluto. compared with whom (in terms of being known about) Uramus and Neptune are veterans. He has not as yet even acquired a proper hieroglyph.

## Pluto

Pluto was not discovered till 1930 and many astrologers are still naturally reluctant to diagnose his significance Presumably Max Heindel, if he were alive, would explain that he had just dropped in from the Zodiac. Pluto is as far away again as Uranus and his apparent motion is only one and a half degrees a year, so it would seem safe to say that he is even less concerned with the human individual than Uranus and Neptune. Ingrid Lind, however, ventures the opinion that he may be "associated with divorce and re-marriage"-but then such things these days arc practically a mass movement. On the other hand. Gleadow considers Pluto very important just because he is so slow-moving: In contrast with the Moon, who is transiting all the time, Pluto barely makes a dozen transits in a lifetime.

Unlike other astrologers, who connect this planet with Scorpio or Pisces, Gleadow says that Pluto appears to rule Aries (what would Mars say?) and that, when he was in Gemini, he produced the airplane. He adds: "Of course it must not be thought that Pluto had no influence before he was discovered." Furze Morrish says that Pluto's entrance into Cancer led to a wave of sensationalism and World War I and his entrance into the next sign, Leo, to World War II and dictatorship. Margaret Hone gives as his keywords elimination, renewal, regeneration. She connects him with the blackout in World War II (association with the kingdom of Hades?) and with the eighth house, which is the house of death.

The discovery of Uranus fluttered the astrologers for some time but they eventually adjusted; however, they are still having trouble adjusting themselves to Neptune and Pluto. Some astrologers now, at least in Germany and the U.S.A.. follow the principle that attack is the best form of defense and are casting and interpreting horoscopes with the aid of a whole set of hypothetical
planets lying on the far side of Pluto. These planets are properly equipped with names as well as with orbits, but. because ihere is no astronomical evidence of their existence (though some astronomers are, in fact, looking for a trans-Plutonian planet), they will be ignored in this chapter.

As far as the "old" planets are concerned, the traditionalists among modern astrologers (which means the vast majority of them; still use 1 hem in interpreting horoscopes very much as they were used by Ptolemy. It must loe repeated that the planets are regarded as having influence only in relation to each other and to the signs of the Zodiac. And with the signs, just as with the plancts, it must always be remembered that there are a great many factors and relationships to be considered before it can be established that so-and-so is such-and-such a "type." With that word of warning we can turn now to the signs of the Zodiac themselves, without which the planets would be not just wandering but lost.

St. Paul's Cathedral above the smoke of the London Blitz in 1940. Many astrologers assign explosive and destructive qualities to Pluto, and regard the planet's discovery in 1930 as the starting point of a period of darkness and violence that culminated in world war.


## 3 The signs of the zodiac

For the sake of convenience (but quite incorrectly) the planets were considered in Chapter 2 more or less on their own. In this chapter the signs of the Zodiac will be treated in the same way, though always with the reservation that, in Ingrid Lind's words, each sign, planet, or other element of a horoscope "has its own characteristics, and like the ingredients of a cake before mixing can be seen and described separately. But, as any cook knows, separate ingredients when treated and mixed produce totally different results." In fact, the Zodiac considered apart from the planets is like an empty stage or empty race track.

The more confusing technicalities, such as the vexed question of "houses," need not concern us at this stage, though I should repeat the warning that the 12 houses, to which astrologers have attached such importance for centuries, do not coincide with the 12 signs of the Zodiac. But we will come to these questions later. Now we are going to concentrate on the signs.

The. name "Zodiac" comes from the Greek word zodiakos, meaning "to do with animals." This in turn is derived from the Greek zodion (strictly zoüdion), meaning "a little (painted or caned) animal." The plural sodia was used by Aristotle for the Zodiacal constellations, presumably because the ancients pictured many (though not all) of them in animal form. The Zodiac itself, which contains these little animals, is a circular band of sky spreading some eight degrees either side of the ecliptic (the path of the Sun), and it is only within


An illustration from a 15 th-century
French text depicting the relationships of the seven planets to the 12 signs of the Zodiac. Within a conventional portrayal of the Zodiac band (with the earth a! Ihe center). a personification of each planet is shown linked to the signs it rules: For example. Mars (an armored knight) is joined to Aries and Scorpio.



Lett, Capricorn the Goat (with the figure of Aquarius visible in the background), as personified in The Celestial Atlas of John Bevis, printed in England tn 1789. The drawing is superimposed on a map of the constellation: but (as with most Zodiac signs) the shape of the figure has little in common with the pattern of the stars.


#### Abstract

Above. a star map relating the actual Zodiac constellations to the imaginary Zodiac band. Due to a "shift"' in the stars' positions over many centuries, the dates of the Sun's entry into each constellation no longer correspond to the dates still used by astrologers. For example, the Sun now "enters" Taurus in May, not in April.


this band that the planets are seen from the earth. Astrology always has been, is. and always will be geocentric; but the astronomical reason that the planets appear to confine themselves to the Zodiac is that their real orbits around the Sun are all more or less in the same plane. The Zodiac does not lie flush with the "celestial equator" (an imaginary extension of the earth's equator) but is hitched at an angle to it, rather in the manner of a cowboy's belt.

When the Zodiac was divided into the $!2$ signs is not known for certain, but it was certainly long after men had identified the planets and endowed them with astrological significance. Here another distinction must be made. Within the Zodiac there are 12 constellations (though once, it seems, there were only 10). These bear the same names as the 12 signs used by astrologers; but astrologically they have nothing to do with the case. If you are told that your Sunsign is Aries-which means that the Sun was in that particular sign when you were born between March 21 and April 20-his does not mean that you were born under the actual group of stars known as Aries. Once upon a time the Sun was (or appeared to be) among that group at that lime of year; but he is not there now, thanks to what is known as the "precession of the equinoxes" (a very
slow shift in the sky pattern, as observed from the earth. that takes 25,800 years to come full circle). The signs that most modern astrologers deal with are 12 exactly equal sections of the total circle of the Zodiac. Each section measures $30^{\circ}$ and il makes no difference what fixed stars are contained in it.

This disconcerting fact provides ready ammunition for opponents of astrology. Robert Eisler (whose polemic book The Royal Art of Astrology was mentioned earlier) pounced with joy on this divorce of the two Zodiacs. "If it is conceivable," he wrote, "that the sector in which Taurus stood two thousand years ago can still imparl 'Taurine' qualities to children born or conceived when this sector was just rising above the horizon, why is this 'Taurine' influence of a constellation which is no more there-i.c., of a pure memory-image-not overwhelmed by the quite different influence of the stars of Aries, which are actually there now, for everyone to see?" Eisler would certainly have an almost unanswerable point if modern astrologers (like many of their predecessors who were only loo ready to talk about "radiation," etc.) really believed that the stars exercised a direct influence upon human beings. But most of them do not believe this. They consider, as did some astrologers in the Middle Ages and the Renaissance, that the stars are merely "signs," not "causes."

In a passage much quoted by modern astrologers, Carl G. Jung wrote that all of us, being born at a given moment and a given place, are invested for life with the qualities of the time of our birth. According to himself, Jung was not presupposing a causal relationship but rather relying on that presumed "unity of tilings" which has so often been a cornerstone of astrology. Anyhow, many astrologers find it logical to attach such importance to the moment of birth ; some

even claim that there is a mass of empirical evidence (like the statistics referred to in Chapter 1) proving that, other things being more or less equal, people bom al the same time (i.e., under the same stars and planets) tend to have certain characteristics in common.

But some more sophisticated modern astrologers, who stress the psychological side of their art. are usually embarrassed by the mass of astrological lumber in their attics. They feel vulnerable to charges like the one made in Chambers's Encpelopracdia(1959) that "the fundamental flaw in the whole system of astrology is the arbitrary character of the presuppositions made." In an attempt to get rid of these arbitrary elements, there is accordingly a modern movement away from traditional astrology.

For all that, the pictures of Zodiacal human types given by such a cultured and amusing astrological writer as Andrể Barbault still remain pretty traditional and, if only from an aesthetic point of view, it would be a pity to scrap some of the more "arbitrary" detail. In fact, since ours is a period when people have a passion for classifying each other (compare Jung's "psychological types"), Barbault has watched his detail and provides a set of self-consistent pictures. He also is very well aware of the poetic or symbolic appeal of his subject matter. But with most of the moderms, psychology is what they go for. Rupert Gleadow writes: "The chief advantage of studying astrology is that it gives the power to understand the feelings and temperaments of others." Which, as he says, can be very useful when asking people to dinner or contemplating marriage.

How or why the signs got the names that they share with the constellations we do not really know. Of the constellations, Leo is the only one who looks

Many of the Zodiac signs we use today can be traced back 3000 years, though their exact date of origin is uncertain. Three of the earliest known representations are from Babylonian kuodurus (boundary stones) of the 10 th century 8 C.: Sagittarius (with two heads, a man's and a lion s), Capricorn, and (right) Scorpio.

anything like his name. Some people have tried to derive the Zodiac names from seasonal activities-Virgo from young girls harvesting and Pisces from the fishing season-hut this often seems conjectural and forced. Gleadow denies "that the signs were named after the constellations with which they once coincided." He thinks it was the other way round : that the signs-the mechanically baconsliced $30^{\circ}$ strips of Zodiac-"were named symbolically after the effects they were found to have and that these names later became attached to the constellations." This seems very odd, especially if one thinks of the effects ascribed to some of the signs. Why should the quality of tenderness, for instance. make people think of the name Crab? Or fixity of purpose suggest the name Water-carrier?

Traditionally, the 12 signs fell into groups of three in accordance with the four elements-so that there are fiery, earthy, airy, and watery signs-and into groups of four in accordance with the three "qualities"-so that there are "cardinal" (i.e., predominant), "fixed," and "mutable" signs. The ancients stressed some other groupings : male and female signs, human and brute signs, single and double signs, land and water sisps, and also mixed signs such as Capricorn, the goat-fish. Ptolemy gives four categories: "solstitial" (Cancer and Capricorn), "equinoctial" (Aries and Libra), "solid" (Taurus, Leo. Scorpio, and Aquarius), and "bicorporeal" (Gemini, Virgo, Sagittarius, and Pisces). The first and second of tiiese groupings make good sense but some of that arbitrariness already mentioned seems to have crept into the third and fourth.

The groupings by elements and qualities seem to be of primary importance to most astrologers. In 17 th-century England, the famous William Lilly pointed out that the great conjunction of Saturn and Jupiter in 1603 was "their entrance into the fiery Triplicity." By "triplicity," which he also called "trygon," Lilly meant the triangle made by the three fiery signs-Aries, Leo, and Sagittarius. "This Trygon is called by Ptolemy the first of the Zodiac; and by the Arabians, the fiery Trygon." Lilly also remarked that this "trygon" was always connected with "memorable and notable changes in the Church and Commonwealth: . . . great actions and alterations have happened under it." He added, by way of proof, the fact that James VI of Scotland became king of England in 1603. (Incidentally, this dissertation on the great conjunction was published about 40 years after the event.)

Most astrologers hold that it makes a great difference whether you are fierv, earthy, airy, or watery. In early 19th-century Britain. John Varley, author of A Treatise on Zotiacalphysiosnomywrote: "The fiery trigon . . . contains the spirited, generons. magnanimous, and princely natures. The earthy trigon. Taurus. Virgo, and Capricorn. contains the careful. sordid, and penurious qualities; the aerial trigon, Gemini. Libra. and Aquarius, contains the humane, harmonious. and courteous principles; and the watery trigon, Cancer, Sorpio, and Pisces, the cold. prolific. cautious, and severe qualities." (Not all of this attribution of qualities would be endorsed by modern astrologers.') Varley added. but without giving statistical evidence, that vastly more people are born under
"the carths, melancholic Saturnine, and the watery. phlegmatic signs" than under the other two groups.

In the 20th century America's W. J. Tucker (drawing on another American, Max Heindel) explains the psychological differences between the cardinal, fixed, and mutable signs : A cardinal sign (i.e., Aries, Canter, Libra, or Capricorn) has a dynamic influence, though lacking directive power, and affects your conscious mind; a fixed sign (Taurus, Leo, Scorpio, or Aquarius) awakens your desire-nature makes you stubborn but dependable, and affects your sulaconscions mind; a mutable (Genimi, Virgo, Sagittarius. or Pisces) deals with your superconscious. Heindel had also asserted, specifically in regard to the treatment of invalids. that with the cardinal signs you Can expect co-operation from the patient, whereas the fixed signs (such as bovine Taurus and arrogant Leo) are so fixed in their ways that they are difficult to handle.

Louis de Wohl distinguishes between signs that encourage the man of action (such as Aries. Scorpio, and Sagittarius) and signs like Gemini and Virgo that encourage the man of system. If you are bom under the latter you might well make a Chicf-of-Staff, but don't go near the front! Of the relationships between signs, all astrologers hold that some signs are mutually congenial and some arcnot ; for example, many astrologers would advise a Pisces type to marry a Cancer but not a Virgo, Gleadow maintains very plausibly that the greatest contrasts are between adjoining signs, as between Taurus and Gemini. And he differentiates between the behavior of the "trigonal" or elemental groups: "The fiery signs, for example, rat a great deal, not from greed, but because their internal combustion proceeds very rapidly."

The traditional order of the signs-Aries, Taurus. Gemini. Cancer. Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius. Pisces-reperents, according to Ingrid Lind, "a progress from primitive unity and simplicity lo complexity." This notion of Zodiacal evolution has been elaborated by much less orthodox astrologers, such as Furze Morrish. For Morrish the circle of the Zodiac is a pilgrimage. The first six signs, beginning with Aries ("nescience" or ignorance), represent the achievement of full objective consciousness (culminating in Virgo) and the kilter (or homeward?) six represent "evolution into the subjective states, or yoga." The 12th sign, Pisces, corresponds to the ascension into heaven (which should comfort those Pisceans who have been told by popular books of astrology that they are just a lot of woolgatherers).

Aside from these groupings-the relationships of the signs with one anotherthe signs also form other relationships. As already mentioned, from the time of the Greeks and Romans the signs were distinguished according to their planetary rulers : Many, say. of the Sun's qualities would be found to characterize the sign Leo; many of the qualities of Venus would be associated with her signs Taurus and Libra; and so on. There are also relationships between signs and houses, between signs and "aspected" planets. And, as another kind of relationship, the apportioning of parts of the human body to the signs was considered gospel even
in ancient Rome, where the first-century A.D. poet Manilius wrote (in a 17thcentury translation) :

The Ram defends the Head, the Neck the Bull,
The Arms, bright Twins, are subject to your Rule:
I' th' Shoulders Leo, and the Crab's obeyed
$V$ th' Breast, and in the Cuts the modest Maid:
I' th' Buttocks Libra, Scorpio warms Desires
In Secret Parts, and spreads unruly Fires:
The Thighs the Centaur, and the Goat commands
The Knees, and binds them up with double bands.
The parted Legs in moist Aquarius meet,
And Pisces gives Protection to Ihe Feet.
These relationships (or correspondences) are just a few of the "ingredients" referred to carlicr. One can easily agree with Rupert Gleadow that "with so much material to go on one is never long at a loss to analyse anyone in terms of the Zodiac."

But before we enter this gallery of 12 archetypes, one very popular fallacy must be ruled out. To be, say, an "Aries type" you do not need Aries as your Sun-sign; i.e., you need not have been born between March 21 and April 20.


One should know one's Sun-sign-as practically everyone does-but there are two other things, as suggested in the last chapter. of at least as great importance in and to a horoscope. These are, first, the position of the Moon in regard to the planets in the Zodiac, and. secondly, the ascendant, the sign that was rising above the eastern horizon at the moment of birth. If you were born at sumrisei.e., if your Sun-sign and ascendant coincide-the effect of the sign, as one would expect, is taken to be greatly enhanced. The same is true if the planet that "rules" the sign is present in il at the time of birth. And the story does not end here; there are yet other things in the whole pattern of the heavens (as we saw in Chapter 2) that can make you an Aries type : For instance, Aries may be neither your Sun-sign nor rising-when you are born, but if there are enough planets in conjunction in Aries (no matter where Aries is in your horoscope) this may be enough to make you an Aries type.

It should be added that very few people are "pure" Zodiacal types. The great majority are noticeably influenced by more than one sign. This is where the really subtle astrologer (of whom there are not so many) can show his skill in interpretation. Even the most naive astrologer would not claim that there are only 12 types of human being; but we will now look at the 12 basic types, giving just a hint here and there of the countless possible variants.

Right, the American poet Edgar Allan Poe (i809-49). Poe's life and writing were haunted by a morbid obsession with violence and death-both associated by astrologers with Scorpio. Poe was "born under" Aquarius ; but Scorpio is in the ascendant in his horoscope (left). In many horoscopes, the ascendant sign (or other features) can be more influential than the Sun-sign.


## Aries the Ram $\gamma$

March 21 to April 20. The hieroglyph for Aries looks like a ram's horns (though Morrish says it might just as well represent a fountain). A cardinal. fiery sign. ruled by Mars: cardinal in that it serves as the ignition key for the year, fiery in that it symbolizes the explosive suns of spring. This is the sign of the vernal equinox when the ecliptic crosses the equator and day and night are of equal length. To the ancients it Seemed natural lo begin the astrological year on March 21 with the first degree of Aries ( $0^{\circ}$ Aries), though the people in the southern hemisphere were not consulted about this. That Aries is a "priority" sign in almost every respect is shown by the instructions given in some of the early Hermetic writings as lo the use of "Zodiacal plants" for magical purposes: Whatever the plant and whatever other sign is concerned, it should be picked and its juice extracted when the Sun is in Aries.

Aries is in general the adventurous pioneer sign and, like all the other signs, has the vices of its virtues. It had been assigned to Mars and its basic character established by the time of Ptolemy, and the association of Britain with Aries goes back to that time. The traditional qualities of the Aries man were briefly and


Courtusy Museum ol Modern Art New Yonk
clearly outlined by Raphael in the early 191h century: "Aries, the house of Mars and exaltation of the Sun, . . . is a vernal, dry, fiery, masculine, cardinal, equinoctial, diurnal, moveable, commanding, eastern, choleric, violent, and quadrupedian sign." It will be remembered that, apart from the sign that a planet "rules," there is usually another sign in which he feels particularly at home; this is the sign in which he is said to have his "exaltation." So Aries's fiery furnaces are kept doubly stoked, by Mars who rules it and by the Sun who is exalted in il.

On the other hand. a planet who is not at ease in Aries is Venus, as should be obvious from her character given in the last chapter. André Barbault stresses that the fire of Arics. in contrast with that of the other two fiery signs, Leo and Sagitamus is the pmal fire that both creates and destroys. So the Aries type of person tends to be an impetuous juvenile type taking no thought for the morrow. And not only juvenile but primitive : Ingrid Lind says there is something of the cave man about him.

There is a general agreement about the character of the Aries man : He is an enthusiast, tough, rather reckless. impetuous always and irritable sometimes, and he falls in love like a thunderbolt. Aries moves much too fast for the Taurus


Left. Starry Night, painted by the Dutchborn artist Vincent Van Gogh (1 853-90). The explosive quality ol the painting reflects the fire and passion that are usually said to be the dominant qualities of the first sign of the Zodiac. Aries (which was Van Gogh's Sun-sign).


Astrologers in the past considered that Aries may sometimes cause a ram-like appearance. Above, two drawings from a 17 th century Italian book of physiognomy representing Aries and its human counterpart.
type (lo be discussed next) and is exasperated by the fussiness and exactitude of Virgo. From early limes astrologers have also described his physical characteristics, making him strong, with powerful shoulders, and so on. After a warning about Zodiacal morphology, Barbault suggests that the Aries type does tend to look like a ram (Gleadow writes that "his nose, even when small, has an energetic arch") and notes that he walks rapidly and has a strong, quick hand-grip. He is something of a menace as a driver, and does not like wearing a hat. As for Aries women, in dress they don't wish to follow the fashion but to lead it; on the other hand, they are almost aggressive in their non-use of make-up.

As examples of Aries types, Barbault gives Louis Armstrong (who invented "hot" jazz), Marlon Brando, George Sand ("the first feminist"), Savonarola, and St. Teresa of Avila. To prove the point that two Aries types can be thoroughly Aries and yet, owing to the positions of the planets, in many ways very different, he contrasts two French writers, Baudelaire and Zola. Each of them had a notable conglomeration of planets in Aries but whereas Zola had the Sun, Moon, Mars. and Pluto, and at that in trine (a good relationship) with Saturn, Baudelaire had the Sun. Venus (bad, as just mentioned, in this sign), Jupiter, and Satum-and at that in the eighth house, the house of death.

Morrish's evolutionary theory has already been mentioned. According to this scheme-in which the whole Zodiac symbolizes the universal "Wheel of Life and Death"-Aries, the first sign, represents ignorance (at whatever level) in contrast

A drawing of the French writer Honoré de Balzac \{1799-i850\}. Balzac's Sun-sign was Taurus: to astrologers, his personality and even his appearance expressed the sign's strong, earthy character.
with the last sign, Pisces, which represents universality (at whatever level). Focusing in, Morrish makes the first three signs stand for "unit germination." Aries here stands for the male creative impulse (to be quickly followed by the traditionally feminine sign, Taurus, which represents matrix or matter). Morrish, like many artists, believes in the fertilizing effects of conflict, and stresses the importance of Zodiacal opposites; for example, "in a physical analogy Libra (air) is required to enable Aries (fire) to 'burst into flame.' " As well as making Aries play the male to the female matrix of Taurus, Morrish makes him stand for motion in contrast with the Taurine inertia. This evolutionary scheme of Morrish's, which involves the concept of yoga, is a peculiarly modern outcrop to which we shall return later. But, on the traditional premises, he has not miscast either Aries or Taurus. We can now turn our attention lo the latter.

## Taurus the Bull ©

April 21 to May 21. To the layman it may seem comic that Taurus should be feminine, but the horned moonface of its hieroglyph certainly looks less aggressive than Aries' hieroglyph, which is almost all horns and nothing else. Moreover, Taurus is a fixed and earthy sign, and is ruled by the opposite of Mars, the gentle Venus. It is not surprising that Taurus is slow and long-suffering, in fact "bovine" ; the hostile Robert Eisler even suggests that he was never a bull, only an ox, and quotes the ancient Roman champion of astrology Firmicus Maternus to the effect that this sign is responsible for the birth of impotent people and perverts. But most astrologers have been less insulting. A slow sign, yes, but a sure sign certainly. Nor is the Taurus type traditionally a sissy : Pearce writes that he is "slow lo anger but, when provoked, furious."

Just as Aries was connected with both Mars and the Sun, so Taurus is connected with the Moon as well as with Venus. Barbault describes the Taurus type as essentially a ruminant, a creature of a leisurely rhythm who lends to walk slowly iooking at the ground, obedient to the law of his sheer weight. The physiognomists, of couse, make him look like a bull : thickset, thick-necked, and thick-lipped, with a broad forehead, wide nostrils, and a tuft: of hair on the forehead. Countess Wydenbrutk notes that he is "not very intelligent," but everyone agrees that he can be a tower of strength. Barbault, in discussing Freud (whom he makes a Taurus type) and his Taurine psychological universe. moves from the love of the child for its mother to the conclusion that "we are here at the heart of Taurus, which represents the meat-safe of the Zodiac . . . and, through displacement of the oral tendency, the strong-box of the Zodiac."

Working on the same strong-box lines. Tucker finds in Taurus a symbol of the Golden Calf; but he concedes that the Taurus man worships money not for itself but for the pleasure and case it will bring him. He adds that, if the Taurus man does have enough money to eat well, he should cut down on the cabohydrates. He is a reliable husband and family man, pays his delts. and enjoys a joke; but loo much of the "ruminant" quality can make him slothful.


Cars speeding along the San Francisco freeway against a background of towering skyscrapers suggest the speed and material progress that characterize the American way of life. Mobility and energy are qualities of Gemini-the sign that is particularly associated with the United Slates.

Right. the British actor Basil Fsthtone as Sherlock Holmes in the film version ol The Hound ol the Baskervilles (made in 1939) The great intellect of the fictitious detective is a typical characleristic of Gemini-the Sun-sign of Holmes's creator. Arthur Conan Doyle.


The two points to remember are that Taurus is essentially fixed and essentially earthy. Gleadow instances as Taurine types George Washington and Arnold Bennett. Barbault gives Balzac and Karl Marx as well as Freud. Marx had Taurus as his Sun-sign and it contained at his birth both the Taurine females, the Moon and Venus. Dialectical materialism, Barbault says, falls naturally under this sign. The next, the first of the airy signs, is a very different kettle of flying fish.

## Gemini the Twins II

May 22 to June 21. A mutable, airy sign, Gemini is ruled (easy to guess) by Mercury. The word "dialectical" might be applied here too, bus more in the original Greek sense where "dialectic" meant conversation-a quick and most argumentative conversation, full of twists and traps and contradictions. All astrologers agree that the Gemini type enjoys argument; after all, this comes naturally to a double man, born under a double sign. Barbault stresses this "bipolarity" and poinls out that Gemini rules the lungs with their double process of breathing in and breathing out. He adds that if Aric-s swmbolizes the original fire at the source of life and Taurus the condensation of this life in a material form (as it were, an egg), it is when the process arrives at the stage of Gemini that this egg is polarized and we meet the differentiation into the masculine and feminine principles.

Morrish, in a not altogether dissimilar way. having equated Aries with the male creative impulse and Taurus with the matrix. lakes Gemini to stand for that "self-conscious entity which is the result" (being the third and last sign in his phase of unit germination). And in a discussion of "astro-symbolism" in which Aries represents motion and Taurus incria, he makes Gemini represent "rhythmic balance or oscillation." Also, Morrish finds in the hieroglyph of this sign two pillars, one light and one dark, a "portal through which every human being must pass." Alternatively, he suggests that the two uprights of the hieroglyph, traditionally equated with the "heavenly twins" Castor and Pollux, could as well be equaled with two aps-the divine ape of intelligence and the chattering ape of imitation. This last piece of symbolism brings us back lo dialectic or. we might as well say. to the good and the bad sides of Mercury.

Being both mutable and airy, Gemini is intellectual but fickle. (Pearce describes the Gennini type as having "disposition fickle, understanding good.") Ingrid Lind writes that he goes to "extremes of rationality" and possesses the "ability to live a double life." It has often been claimed by astrologers that many intellectuals are born under this sign. But, as indeed is often the case with intellectuals, the Gemini person is often emotionally cold. His congenial signs are Aquarius and Libra; he would not get on with cosv old Taurus. When we are told by Gleadow that Gemini is "pure intellect" and that no one is more mobile (a word frequently used of his sisn, it is surprising to find him quoting Queen Victoria as someone who was born with Gemini rising.

Unfortunately, Gemini is the patron not only of intellectuals but of egocentrics and, in some cases, of lunatics. Thus another British monarch, the notorious George III, is quoted by Raphael as an example of the bad influence of Gemini, "the sign remarkable for producing insanity" when the planetary picture goes askew. But in the late 19th century (after Raphael) a study of a number of wellknown cases of insanity was made by the British scholar Richard Garnett; while he was struck by the frequent conjunction of Mercury and Saturn, he found Gemini featuring only once in his chosen group of mad monarchs.

As regards the minor characteristics of Gemini people, Tucker notes that, if this is your Sun-sign, you may be inclined to vegetarianism. Barbault observes that Gemini women prefer two-piece suits and checkered materials. The physiognomist John Varley writes: "Gemini, though a beautiful and hmman sign, yet occasionally gives to persons born when it is rising [note that he is concerned with the ascendant. not the Sun-sign] a strong resemblance in the head and neck to the characteristic forms of goats, kids, and deer."

This sign stands for nervous energy; the United States is said to be very much under its influence. Among people born with Gemini rising many astrologers include Dante, Kepler. Wagner, Bernard Shaw, and Clemenceau. Barbault includes Conan Doyle in his list of Gemini types; he adds that Sherlock Holmes is a "popular Gemini hero." On the debit side, apart from producing madmen, it can (like its ruler Mercury) produce crooks and very selfish people. Once again, in moving from this sign to the next, we find a complete change of atmosphere.

## Cancer the Crab

June 22 to July 22. In spile of its name. Cancer is a homey, motherly sign, but also perhaps the most vulnerable. It is the sign of the summer solstice, from which it will be nine months before Aries comes around again; it can therefore be regarded as a symbol of fecundation and conception. As with the other signs, Barbault makes much of its position in the year, forgetting that many other countries have their spring and summer at different times from his. But on the symbolism of this sign and the psychology of Cancer people, he is at his most eloquent and suggestive. Because il is a cardinal sign and the first of the watery signs, he treats it as symbolizing the primal water-les earr-meres-in the same way that Aries symbolizes the primal fire. It therefore stands for our ancestral origins, all organic life being assumed to have begun in the waters. It also stands, like the sea, for both intuition and introversion. It is the one and only sign ruled by the Moon, so Cancerian qualities arc very much the same as the lunar qualities described in Chapter 2. The Moon, it will be remembered, is Our Lady of the Waters.

In accordance with this watery character, Barbault says that the Cancer type tends to be $u v$ wigetatif. And the Cancer man (it is easier to be a Cancer woman and work it out in motherhood and the home) is often unduly feminine: as Pearce puts it, "effeminate in constitution and disposition." Cancer people can


Above, the French novelist Marcel Proust \{1871-1 922). whose introversion and sensitivity typify Cancer (his Sun-sign). Above right, the modern artist Salvador Dali represented as a fetus in an egg. This "return to the womb" idea also ties up with Cancer (linked with fertility and buth), which was Dalis ascendant sign,
easily become "drowned in their own insecurity" : They are over-emotional and sub-active. But there is another side to the picture. In its earlier pictorial representations. Cancer was drawn as a crayfish, a creature that can give one a terrible nip. And even crabs, however soft inside, have a very hard shell and are difficult lo dislodge from their chosen crannies. So throughout the centuries this sign has stood for tenacity. Not only for tenacity of purpose but also for tenacity of memory-especially memory of childhood. Which brings us round to the loome: again. "Chercheala mert," writes Barbault, "et vous trouterez le Cancer!"

This sigh, however, stands for not only motherly people but mother-fixated people. Being extremely sensitive, it is in fact a sign of many colors and moods. Many astrologers consider that it makes excellent teachers (or actresses) and in it Barbault distinguishes what appear on the surface to be two quite different types: the stay-at-home, sulficient-unto-the-day type and the explorative, castles-in-the-air type. (Actually he would not claim that these are more than subtypes.) The examples that he gives of Cancer people include. Byron, Coctean, Salvador Dali, Rembrandt, Rousseau, and Schubert. And he refers to the great stress laid upon intuition by the philosopher Bergson, who had his Moon in Cancer.

Earlier astrologers laid less stress on the profundities and sensitivities of this sign and more on its crab nature. According to Varley, Cancer tends to give "a crabbed, short-nosed class of persons, greatly resembling a crab in fcatures. when viewed in front; these persons resemble crabs, also, in the energy and tenacity with which they attack any object." And in spite of his shy and retiring nature a Cancer friend can be a social asset. Gleadow advises anyone about to give a dinner parly: "If you want to know about food or wine ask Cancer." (He adds unkindly: "And if you want someone who will not object whatever you do choose Pisces.")

Morrish, in his ladder of Being (or, more strictly speaking, of Becoming), makes Cancer the first of three rungs representing gestation and birth. (He suggests that the hieroglyph could stand not only for crab-claws but for breasts.) The Zodiacal opposite lo Cancer is of course Capricorn, an earthy no-nonsense sign that does not suffer from hypersensitivity. The signs that Cancer gets on with are Pisces and Taurus : bul in mundane astrology Cancer and Capricorn are bracketed together, not only because they are both solstitial signs (one summer, one winter) hult because they are the traditional fields for world-wide disasters. A third-century B.C. astrological missionary from ancient Babylon to Greece named Berosus taught that, when all the planets are in conjunction in Cancer, there will be a universal conflagration (a summery type of disaster); when they get together in Capricorn, there will be a universal deluge.

So there is Cancer, the only sign ruled by the Moon. Water. wafer, every-where-but also tenacity and patience, maternal love, understanding of others, extreme sensitivity, and introversion. And next door to it, with the usual dramatic juxtaposition, whitt should we find but the only sign ruled by the Sun?

## Leo the Lion of

July 23 to Nugusi 23. A fixed and fiery sign. With Leo, Ingrid Lind begins by picking on the apparent paradox "or contradiction . . . in the thought of fixed fire.' 'The answer, she says, lies in "molten gold," but she could also perhaps have used her cookery ingredients analogy. She goes on lo contrast Leo with the first fiery sign, Aries, who is anything but fixed. Aries is impulsive and restless; Leo, like the Sun, stays put on his throne. People born with Leo rising include Bismarck, Garibaldi, Huev Long, and Picasso. Among those who had Leo as their Sun-sign were Lorenzo de Medici, Louis XIV ("le Roi Soleil"), Napoleon, and Rubens.

This, then, is obviously an extravert sign; it has produced far more than its share of presidents both in the U.S.A. and in France. As to the physical characteristics of Leo men, Pearce attributes to (hem "a large, fair stature, broad shoulders; prominent and large eyes; hair generally light and often yellowish; oval, ruddy countenance; of a high, resolute, haughty, and ambitious temper." Varley less flatteringly describes the Leo physiognomy as "most resembling a lion. especially in the nose and retreating chin; such as the profile of King

The Italian fascist leader Benito Mussolini (1883-1945) was born with the Sun in Leo. The planet and the stgn have a similar astrological character: when combined (as in Mussolini'shoroscope) they are said to lead to aggressive ambition and power seeking.


George III." Barbault distinguishes two physical types of leo-the Herculean and the Apollonian but they arc: both athletic and fine figures of men. He instances Dumas pire as an almost pure specimen of the Herculean 1ypre: As for Leo ladies, Barbault notes that they go in for la grande toilette.

The Sun in Leo is at his greatest strength, and il is this strength that is the essence of this simn- the strength of a fire that has now been brought under control and is harnessed to useful ends. Morrish (in his psycho-evolutionary scheme) brackets Leo with Cancer as the "fundamental positive and negative polarities underlying everything." Barbault contrasts Leo with Cancer: In Cancer the umbilical cord has not yot been cut ; it is Loo who breaks out into independence. But though independent and very full of himsell, the Leo man is far from anti-social : "His ego disappears in his vocation" and he is a great worker. However passionate and ambitious le may be (with him "isuloircest dejad pouar", Barbault says, his ruler the Sun acts as a sort of internal gendarme. Not that he always obeys this gendarme. As with any other sign, the types can go wrong. One should specially beware of Saturn in Leo. a sign in which he is "in exile" : This can produce people like Cesare Borgia.

There seems no need to stress the animal symbolism of Leo-the king of beasts, cle. His $30^{\circ}$ of the Zodiac are filled with roaring. But when we step over the border between this sign and the next we perhaps heal a typewriter, or a


A Swiss craftsman assembling a watch
exhibits the precision and attention to minute detail that astrology connects with the sign of Virgo-which, appropriately.
is the patron sign of Switzerland.
vacuum cleaner, a secretarial voice drily reading the minutes, a whispered aside of criticisn. We have entered territory where everything must be "just so"floors must be swept, files must be kept, i's must be dotted and /'s crossed, beds (in all senses') must be properly made.

## Virgo the Virgin me

August 24 to September 23. A mutable, earthy sign, ruled by Mercury. Ingrid Lind once again asks straight away : How can earth be mutable and mercurial? And the answer yet again is in the other ingredients (though, as she says, this internal conflict does tend to make a Virgo type a worrier). Gleadou calls Virgo "perhaps the most earthbound" of the 12 signs, but her earthiness is very unlike the eartbiness of Taurus: Mercury could never rule Taurus. In fact the earth gives Virgo common scrise and Mercury supplies an unusually keen intelligence. The two together make for disciplined thinking and acting. Cardan (Girolamo Cardano), the famous 16 th-century Italian physician, mathematician. and astrologer, was grateful to the Mercury in his horoscope; Mars, he said, was casting an evil influence on both the luminaries, so "I could easily have been a monster, except for the fact that the preceding conjunction had been $29^{\circ}$ in Virgo, over which Mercury is the ruler." N.B. : Virgo is a human sign.

Virgo is thought of as the patroness of critics and craftsmen. but not of creators or commanders. Louis XIV, though he had his Sun in Virgo, is regarded as a Leo type owing to the position of the planets in his horoscope. But Virgo is a great deal more than a sharp-tongued and keen-eyed housewife. It is the patron sign of Switzerland (which was to be expected), but also of Paris and of cats (no doubt because cats are so neat). Morrish connects it with diet and also with psychology. And Tolstoi is accepted by astrologers as a Virgo man, having had not only the Sun and Mercury in the sign but the Moon as well. Which would suggest that Virgo can be creative sometimes, though perhaps what is most obviously Virgonian about Tolstoi is the exact and conscientious way in which lie tried to lead a new life in his old age.

Virgo is traditionally represented holding a sheaf of corn and, in western Europe at least, its time of year is the lime of harvest, which means both fulfillment and desiccation. The idea of granaries may connect with Virgo's place in the picture of Zodiacal Man; it is assigned (in the phrase of the Kalendar of Shepherds') "the belly and the entrails"-i.e., it rules the digestive system. Barbault typically pounces on this to prove that the ancients anticipated modern Freudian psychoanalysis: What we find in the Virgo types is the "anal complex," hence their tendency to hoard things. But he admits that there is a small subspecies of Virgo in which the anus is equally important but plays an opposite role-"anal relache" instead of "anal contrôé"." Ivan the Terrible was one of these; such people are really more like Scorpio. There is also, says Barbault, a somewhat larger subspecies of "ambivalents," who are holding back one moment and letting go the next.


A painting by the Italian artist Canaletto (1697-1768) of the Grand Canal in Venice. Libra (which was Canaletto's Sun-sign) is the sign of harmony and balance-qualities that are suggested by thesymmetry of the painting's composition and the detailed representation of the architecture.

Anyway, the traditional Virgo type is somewhat dry and cold, a fusser over detail, a discriminator, a rationalist. a perlectionist. yet prepared to sacrifice himself. Barbault suggests that if the Pisces man is like an astronomer brooding on the infinite spaces, the Virgo man is like a biologist with a microscope. For Morrish, Virgo is the third of his second group of three signs, the triad that denotes gestation and birth. So here Virgo, in spile of the name (but compare the harvest symhol), represents "conscious birth into the outer world, and objective powers of observation and selection." The sign is a halfway house:

Vou can go no further in the way of objective consciousness. But at the same time it is the beginning of "the cyele of evolution from the material back to the spiritual."

As already mentioned, the remaining six signs represent for Morrish "evolution into the subjective states, or yoga." The next sign, Libra. the first of the third triad. represents collective germination. But whereas Virgo (as halfway house) stands for the first stage of discrimination, with Libra there begins a second stage, which means the control of emotion.

## Libra the Scales $\Omega$

September 24 to Octobe: 23. A cardinal, airy sign, ruled by Venus. One would not expect to find Venus as Libra's ruler (ii has little in common with the other Venusian sign, Taurus) but Venus, as we saw in the last chapter, stands for harmony and so can promote a proper balance not only between persons but also within an individual. So the Libra type is easy to get on with, being diplomatic, gentle, and tolerant. Tucker comments that this type has "many of the traits common to the Chinese race." (This was before China went Red.) Being the other equinoctial sign, Libra is the opposite number to Aries, and we could well imagine that it might do Aries some good. But this is contrary to the opinion of most astrologers who think that any two signs $130^{\circ}$ apart must be opposed lo each oilier in every sense, just as planets are when in "opposition." There are, however, a minority who think that such opposed signs would naturally complement each oilier, and certainly the signs of the spring and autumn equinoxes would seem to be a case in point.

Note that Libra is the only one of the signs that is inorganic; thus it seems quite fitting that Varley summarizes its "elementary notions" as follows: "Libra, independently of its appearing in the world's horoscope, to mediate the Zodiac horizontally, and to balance, as it were, the sign Aries, has been found to signify straight lines and regular buildings, and the sublime uninterrupted horizon line of the sea; it represents also the blue color of the sky and the distances." We might add, thinking of this blue seascape, that the Venus who rules Libra is more the Venus Anadyomene of Botticelli than the sensual goddess who prompted the Wife of Bath.

The picture that emerges of the Libra person is a sociable, cultured, and courteous person, perhaps only loo pleased to sparkle in embassies. He seems to be homanist. empiricist, and eclectic, and almoss entirely lacking in aggression. He would do most things for peace and finds it very difficult lo say no. Perhaps his chief virtue is that he can sec both sides of a question ; his chief failing that he is too easily influenced. As for the Libra woman, she is extremely soignee. Barbault includes among Libra types Erasmus, Katherine Mansfield. Gandhi the apostle of non-violence, and, as its typical painters, Boucher and Watteats. Libra could hardly frighten anyone. We now move on lo a sign that has long had a sinister reputation.

The Dutch-born spy and femmefatsle Mata
Hari (1876-1917). Astrologers relate
Scorpio to both erolicism and death ; and they would detect its sinister influence on Mata Hari (Scorpio was her Sun-sign).
whose career of amorous and political intrigue ended with her execution.


## Scorpio the Scorpion m.

October 24 to November 22. A fixed, watery sign, ruled by Mars. Traditionally, people were frightened of Scorpio, since it is the eighth of the signs, and was thus often related to the eighth house, the house of death. Varley gives it rather' alarming physical characteristics: "Scorpio has been occasionally found to afford to one class of human form when it is rising, a near approach to serpents, in the expression of the countenance, especially in the eyes and mouth; and when doing or saying cruel and bitter things, they are apt lo be assimilated to the nature of snakes, scorpions, etc." This animal symbolism has been made much of by most astrologers, but it is surprising to find a scorpion, usually encountered in hot, dry countries, established as a watery sign. (All the same, we are told that some modern Scorpio types excel at skin diving.)

The watery significance of Scorpio has been explained in different ways. Ingrid Lind says it is "the tidal wave of the thundering weight of Niagara." On the other hand. Barbault contrasts it with the water of Cancer (the source) and the water of Pisces (the ocean) and makes it essentially stagnant, the kind of water that is found in marshes. This does not seem to fit with the energy and passion attributed to Scorpio characters, but Barbault no doubt is basing this diagnosis on the fact that Scorpio is a fixed sign; after all, Cancer is cardinal and Pisces is mutable.

Stagnant or tidal, Scorpio is very peculiar. Barbault points out that the scorpion is the only animal that can kill itself (whether deliberately or not) by stinging itself with its tail. And he describes the sign as "the cemetery of the Zodiac." But. readers who think themselves Scorpio types need not be alarmed : Scorpio has enormous stamina and can make a comeback like a phoenix. Having Mars as its ruler, it shows two main Martial qualities: aggressiveness and eroticism. Barbault writes that "the most murderous sign is also the most fecund." And to explain the apparent contradictions in Scorpio he once again, as with the preceding sign Virgo, calls in the anal complex. The Scorpio infant gets its first taste of power on the pot-and it will never look back.

Some modem astrologers prefer to think that it is the newcomer Pluto, rather than Mars, who is the ruler of Scorpio. This would only emphasize the dark side of the sign, Pluto being the lord of the underworld. To look on the bright side of the sign, we are told that though the Scorpio man doesn't set out to please and doesn't like taking advice, he can be very good company just because he enjoys things so much. We are also informed that he often excels as a physician or a practical engineer and that Scorpio women make excellent cooks -and tend to have sexy voices like Edith Piaf. Born with Scorpio rising (which, according to some, endows a man with Spartan qualities) were Nelson, Kemal Ataturk. Goering, Mussolini, Franco, Nietzsche, Gocthe, Victor Hugo, and Edgar Allan Poe. Goethe's great hero Faust has been taken as a Scorpio type. Dostoevski, Gocbbels; and Madame Curie had it as their Sun-sign. Scorpio,
being simultaneously fixed and watery, is like the two preceding signs. Libra and Virgo-complex if not self-contradictory. The next sign. Sagittarius, being mutable and fiery (which scems to make more obvious sense), is comparatively straightforward.

## Sagittarius the Archer $\nearrow$

November 23 to December 21. Ruled by Jupiter, Sagittarius is accordingly an expansive sign. From ancient times it has been represented by a centaur drawing a bow, which is why Ptolemy classed il as a "Incorporeal" sign, and many astrologers nowadays lay stress on this double nature. So after all it is not 100 per cent straightforward. With its animal half and its human half, it provides a good theme for a sermon or, as Barbault puts it, gives the "best image of sublimation." It has its four feet (or hooves) firmly on the ground and yet is shooling at the highest targets. On its centaur make-up Varley comments that, whereas its human half signifies "the deliberation or temperate resolves of humanity," its latter half "often exhibits more of the excessive impulses and nature of a race-horse, an animal most specifically described by Sagittarius." It is this latter half that may affect you if you were born roughly between December 6 and 20; it can lead to nasty accidents.

As one would expect with a ruler like Jupiter (see Chapter 2), it is a success sign. Abraham lincoln and Cecil Rhodes were born with Sagittarius rising, and Winston Churchill had it as his Sun-sign with Venus also present. (Countess Wydenbruck, however. did point out that Churchill's horoscope shows him "likely to be subordinate to others in his profession.")

As lo the fine of Sagittarius, Barbault describes it as a purifying fire, very different from that of either Aries or Leo, and suitable to later middle age when the desires of the flesh are waning but the spirit can still have a burning desire for social, political, intellectual. or spiritual objects. Morrish writes: "Whereas Aries represents the red. smouldering fires of creation, and Leo the vellow-golden fire of organized mentality, Sagittarius represents the blue fire at the heart of the flame. This is the hottest part of the flame." Sagittarius always wants to go further : He is a born explorer and adventurer and loves the wide open spaces. Everything lie does is done in a big way. In music the Sagittarian type is Beethoven.

In the Zodiacal Man, Sagittarius is. connected with the thighs. which brings us back to the power of horse and horseman. Many astrologers use this horse motif literally as well as symbolically. We are told that many Sagittarians are very horsey (and for that mailer doggy) people : The eccentric and dynamic Queen Christina of Sweden, who dressed like a man, was mad about horses and also had something of a "horse face." (So had Milion. Who was born with Sagittarius rising.) We are also told that the typical Sagittarian is "as strong as a horse." He has a very healıly appetite and in middle age has a tendency to embonpoint.


America's James Thurber (1894-1961)
oten illustrated his humorous essays with
cartoons of which the best-known are probably "Thurber's dogs." An affinity whith animals is a key characteristic of Sagittarius (Thurber's Sun-sign)-an association that perhaps originated from the idea of the sign as half-man, half-beast.

He is a very strong individual but, like Jupiter his ruler, is a good mixer and, indeed, finds himself only in communal concerns. Barbault does suggest that there is an introverted subspecies (where Saturn dominates) whose member is concerned with the "beyond" within himself, but the typical Sagittarian throws himself into things outside himself, sometimes even achieving a "global vision." He has a hearty handshake, slaps his cards on the table, and tends to be euphoric. It is a little hard to recognize him in Morrish's system, where he stands for the "abstract, higher consciousness." But then Sagittarius has to conclude the second of Morrish's four stages, the stage of "control of emotion" : In this sign human emotions have to emerge from animal desires (the centaur again) and these emotions, in turn, must be directed into lofty aspirations-the arrow must leave the bow. Morrish squeezes his next and third stage, the "control of wind," into the confines of one sign only; which is naturally our next sign.

## Capricorn the Goat wo

December 22 to January 20. A cardinal, earthy sign ; also an equinoctial sign, the equinox of course being the winter one. So Capricorn's ruler, predictably, is frosty old Saturn. "One does not invite to dinner the same evening Leo and Capricorn"; so writes Gleadow and, if you look back in this chapter to the account of Leo and in the previous chapter to the account of Saturn, you will have a notion of what Capricorn is like. With this sign one is (in western Europe) al the midnight of the year, so no wonder Morrish makes this the stage for "control of the mind." Tucker says that if Capricorn is your Sun-sign you should avoid alcohol in any form, if it is rising you will be inclined to be very pessimistic, and if you have the Moon in Capricorn you will be very disagreeable if you don't exercise control-witness Napoleon.

In the mid-19th century, when astrology was getting more mixed up with Biblical symbolism, Frances Rolleston (author of an odd book called Mazzaroth, the Hebrew name for the Zodiac) equated Capricorn with the kid of sacrifice, But then she had already equated Aries (of all the signs!) with the lamb of innocence and meekness. From more orthodox angles A. J. Pearce ascribed to this sign a "disposition subtle. collected, calm, witty, and yet melancholy" and Ingrid Lind speaks of "action allied with caution and commonsense." Through the ages Capricorn has been more often than not represented as a goat with a fos tail: Varley comments that while some Capricorn people look like goats, others look like fish. Symbolically, homever. we can go deeper-or higher-than that: This is a fish with ambition that would like to clamber up the mountains.

Barbault stresses the opposition-and complementary relationship-of Capricorn and Cancer : Cancer is to Capricorn what the mother is to the father, the base to the summit, etc. In Capricorn we are getting away from matter (compare Morrish). Collectivization is coming in and the state or religious conscience may take over. Saturn is casting a chill or a shadon and yet he may be a liberator. If Saturn the ruler is actually in this sign, then everything is cut to the bone:

You get people like Kant and Mallarmé. Among other Capricorn types Barbault instances Queer Elizabeth II (Capricorn rising and in sextile 10 Saturn, so strongly Saturnian). the stolid Marshal Joffre (both Sun-sign and ascendant). Kepler (of whom more later), Pasteur, Woodrow Wilson, and, above all, Stalin. The last named had his Sun in Capricom, in aspect will all the slow-moving planets, Mars. Jupiter, Saturn, lramus. and Neptune. (iet the idea?

Capricorn people are thought to be born traditionalists, yet they are not so much disciplinarians as diplomats. They like traditional cermonies, religious or

The yearly spectacle of the state opening of Britain's parliament is an example of the pomp and ceremony thai surround the British monarch. Such a concern wilin tradition and ritual is usually associated with Capricornthe ascendant of Queen Elizabeth II

civil, and are upset if they are dressed wrongly for the occasion. It is also conceded that many of them are religious in a deeper sense; this might provide a bridge from traditional astrology to Morrish's astro-psychology. For Morrish, Capricorn is the gate to the spiritual life just as Cancer was the gate to "formlife." We are now getting into yoga (under Capricorn, like a yogi, one practices control) and are on the brink of spiritual rebirth, which for Morrish is represented by the next sign, the last but one in the Zodiac.

## Aquarius the Water-Carrier $\approx$

January 21 to February 19. A fixed, airy sign. Aquarius's ruler is traditionally Saturn, though some astrologers (such as Varley) prefer to promote U ran us or at least make him co-ruler. This sign provides some of the most graceful illustrations to medieval textbooks and has long been thought of as a particularly human sign ; Gleadow calls it "the only completely human sign in the Zodiac." But there seems to be a divergence of opinion as to whether he represents the ordinary man or an especially gifted man. On the former premise he is linked with democracy, on the latter with science and the capacity for abstract thought. This was the Sun-sign of Galileo, Francis Bacon, and Darwin.

Some years ago the French amateur astrologer Paul Choisnard investigated the horoscopes of 119 outstanding intellectuals and claimed to have found that under only three signs was the incidence more than average-Gemini, Libra, and Aquarius. These, of course, are the three airy signs and the symbolism of air here is obvious. Traditionally Aquarius rules the circulation of the blood, and this has been correlated with the circulation of ideas. If Uranus is brought in, one would expect to find Aquarians showing the characteristics of that planet (like mechanical inventiveness) and also what Ingrid Lind calls the "Uranian urge to disrupt." Miss Lind, on the assumption of co-rulership, would like to distinguish Saturnian Aquarians from Uranian Aquarians. Rupert Gleadow, writing of the so-called "Aquarian Age" (see below), foresees the spread in the immediate future not only of such Uranian effects as machinery and inventions, but of "world-wide organizations, . . . international collaboration, and the Brotherhood of Man."

The Aquarian, unlike his predecessor the Capricornian, is no respecter of tradition or convention (otherwise he would not be so well equipped for scientific research). But he is, in the best sense of the plirase, a respecter of persons because, once again, he is human. He pours out the water freely : "Your need is greater than mine." He can be tactless, though, and other faults ascribed to him are obstinacy (after all, this is a fixed sign), fanaticism, and (more surprisingly) inefficiency. Countess Wydenbruck describes him as "popular yet solitary, often abnormal." It has been observed that Aquarius men often have beautiful profiles but tend to look unduly feminine. But this is not mentioned by that old traditionalist Pearce, who merely says that the Aquarian is "of prepossessing appearance and good disposition," and has a "long and fleshy face." Here we have a
minor inconsistency, since in another passage describing the influence of Aquarius as a Sun-sign, Pearce speaks of "a round full face," and again goes on to mention "good disposition, though tinctured with pride and ambition; artistic or scientific."

Apart from the scientific chinkers already mentioned, other people who had Aquarius as their Sun-sign were Abraham Lincoln, Franklin D. Roosevelt, and James Dean. Edward VIII (the Duke of Windsor) was born with Aquarius as his ascendant sign.

To return to the "Aquarian Age": Many astrologers block out history in periods of roughly 2000 years, each such period falling under the tutelage of a particular sign. This is dictated by the movement of the vernal equinoctial point (i.e., $0^{\circ}$ Aries), which goes very slowly backward through the signs (because of the "precession of the equinoxes," mentioned earlier). So in the last 2000 years B.C., $0^{\circ}$ Aries was in Aries the constellation. Then it moved into Pisces very suitably, since the Piscean Age coincided with the Christian era, and the fish was an early symbol of Christ. As to whether the Aquarian Age has yet begun, astrologers disagree. Ingrid Lind thinks that it has, and ascribes to it much the same characteristics as Gleadow: "All the modern trend of thought and invention." For Morrish also, but in a different way (since what he is

The American film actor James Dean (1931-55). Astrologers would label hes sensitive good looks as typically Aquarian -and Aquarius was Dean's Sun-sign. Equally typical of this sign was the youthlul spirit of rebellion against convention that James Dean stood for during his efared and. especially, after his death.


concerned with is subjectioe development) Aquarius is "the awakener." For him it is the sign not of the scientist but of the yogi-"the develapment of spiritual conseiousness through contemplation." This development will be completed in the next sign, which he takes as representing the "cosmic ocean."

## Pisces the Fishes $H$

February 20 to March 20. A mutable, watery sign. To be both mutable and watery might be thought to be overdoing the fluid eiement; waditionally I isces types are liable to lack both stability and prexision. But the ruler of this sign is Jupiter (though some would substitute Neptunc), which tends to correct the balance. The water symbolism is made much of by astrologers (Pisceans are said to be wonderfully adaptable and to make good actors) but the actual fish reference has mostly been dropped. Varley provides an example of the latter: "Pisces was found to signify persons who were employed in fishing, and in other watery concerns. . . . It is a sign under which many fishmongers are born . . . and some of the persons born when it is rising approximate to fishes in their eyes, which are somewhat conspicuous and phlegmatic."

Modern astrologers do not mention fishmongers but they stress the fact that Pisceans at their best are idealists and, at their worst, drifters. They are not individualists and in fact seem laardly conscious of their own individuality. And they certainly are not go-getters: They are gentle, shy, sensitive (often hypersensitive), vague, and prone to melancholy. Some retire from ordinary life by drifting (astrological textbooks always wam them against drink); olhers retire into lives of dedication, in eloisters or hospitals. They are extremely malleable, of ten lesitant, and keep changing course; Barbault says that the Piscean voluntarily loses himself in a labyrinth. When they lie it is not usually intentional but just part of their general confusion. The Moon in Pisces is dangerous for she encourages fantasies and hallocinations. At one extreme the Piscean can lapse into schizopherenia.

All this being so, it is not surprising that some of the artists born under this sign (it coald be said to be a matural sign for artists) should have had tragic carcers. It was the Sun-sign of the unfortumate German poet Hälderlin, who went mad. Nijinsky was born with Pisces rising, and also went mad. And the pessimistic German philosopher Schopenhaucr was born under Pisces with Saturn very prominent in his horoscope. A tragi-comic example from fiction is Dickens's Mr. Micawber in Dazid Copperfeld, a person who (according to Gleadow) "is notoriously Piscean."

The Polish-born pianist and camposer
Frédéric Chopin (1810-49). Chopin's career. devoled to romantic music and romantic love affairs, ended in early deaih. Elements of love. art, and tragedy are all athibutes of Pisces, which was Chopin's Sun-sign.



Above, four diagrams setling out the usual astrological meanings of the 12 houses, which are classified (like the signs) as either earthy, watery, airy, or Hiery, Each house is also traditionally associated with a particular Zodiac sign and its ruling planet (here indicated by their symbols). For example, the second house (finance) is linked with the "earthy" sign Taurus and its ruler. Venus.

Left, the positions of the 12 houses on a horoscope chari. Each house is shown in its traditional relationship to a particular sign-for example. Aries is associated with the first house (life), But the relationships shown here do not always apply: Although the positions of the houses never change, the positions of the signs vary in each chart.

On the brighter side of the picture, Pisceans are very lovable people because they are very loving. Not only is Pisces ruled by Jupiter (which tends to redress the shyness, neurosis, ect.) but it is in this sign that Venus is exalted. And, true to the oceanic nature of the sign, the Piscean tends to "lose himself' in love. In Morrish's scheme there is a similar merging or fusion but here it is a "liberation" in the symbolic ocean of the cosmos: We have reached the highest point of yoga or spiritual consciousness, the top of the Zodiacal ladder. As usual, this is Mortish's own formulation, luut le also acceps the traditional idea of the Piscean Age and, unlike Gleadow and others, deplores the fact that it is passing : Everywhere he sees a "characteristic destruction of Piscean values."

With this sign we lave cone the-full circle of the Zodiac. It is hoped that the rather sketchy summary of the signs in this chapter will at kast throw some light on the historical chapters to follow. There has not been space here to say much about "mixed" Zodiacal types; but some very important matters, such as the effect of the aspects, will be discossed again in Chapter 8 , which will also give a glance at such things as "transits" and "revolutions." In that chapter we shall also see how astrologers disarree as to "house arrangement."

What the 12 houses mean, however, has been fairly well established since ancient times, so, as the houses will be referred to here and there in the historical chapters, it is worthwhile ending this chapter by giving very approximately their traditional significations. (Remember that, though they may have affinity with the respectively numbered signs. they do not coincide with them. The seventh house, say, is always in the same position; the seventh sign is not.)

First house: The life of the individual, the self, his enencral potentialitics.
Second house : His possessions (compare old strong-loox Taurns). Finance. ctc.
Third house: Education; relationships with what Americans call one's "peergroup."
Fourth house: Farnily origins, parents, home.
Fifth house: Loves, recreations, children.
Sixth hase: Hard work, health. domestic chores. (Compare poor Virgo.)
Seventh house: Marriage, partnerships, emmities, etc.
Eighth house: Death. Also inheritances.
Ninth house: Higher life of the intellect and spirit. (Compare Sagittarius.)
Tenth house: Social life, profession, reputation, honors, etc.
Eleventh house: Frimdships, objectives.
Twelfh house: Troubles of varigus kinds, illnesses, betrayals, disgrace. There is a Latin mnemonic distich that puts these in a nutshell:
lita, lucrum, fratres, genitor, nati, valetudo, Uxor, mors, 立etas, regnum, benefartnque, carcer
and that can be translated: Life. lucre. brohers, faher, children, heahh, wife, death. duty, career, benefils, prison.

And now; having assembled our cast of troth planets and signs, let us go back into history and see how the first divectors or stage managers manated them.

## 4 The ancient world

According to one modern astrologer, echoing historians from the early Christian era, "Adam was instructed in astrology by heavenly inspiration." Without bringing Adam into it, the fact remains that astrology is of great antiquity. The brand practiced in Europe foday derives originally from ancient Mesopotamia. The Greeks and Romans tended to call all astrologers "Chaldeans" (i.e., Babylonians), while their name for a horoscope was "Babylonian numbers."

In these begimnings astrology was still intertwined with astronomy, which had come into being when people began to ask for an accurate time reckoning. Such a time reckoning was required for agricultural purposes, but most of all by religion. Religious ceremonies had to take place at fixed dates, so the astronomers were the priests. A Babylonian priest in the carly days must have been something of a commissar: 'The land belonged to the gods, and the priests were the gods' stewards. (In other commers farther east, such priestly astrologers retained their powers till fairly recent times-for instance, the Brabmin furohitas who published the Hindu almanac, and at a word [rom whom parents abandoned their babies.)

The dry, cloudess Mesopotamian climate is naturally favorable to astronomy; in Babylonia the priests were ohserving the heavens from the third millennium B.e., and many of the fixed stars and constellations (such as the Pleiades and Orion) were hnown and named by them. The 12 signs of the Zodiac probably



> Left, a 20ih-century e.c. copy of an oider Eabylonian clay tabletrecording the movements of the planet Verus and omens indicated by herrisings. Such records were compiled by Babylon's priests (represented, right, by a statue of 2700 g.c.). who were both astronomers and asirologers. and who predicted (and guided) the future of the state and its rulers. Piests in modern India (like the Hindu holv man. below right) are also partly astrologers: They use astrology to choose the best dates for religious festivals, weddings. and other ceremonies.

came later. But what we think of today as the astrological approach seems to have been there from the start.

The idea that the stars condition human behavior and fortunes rests on the notion that the world is one-a whole of interdependent parts. This world is full of correspondences between things above and things below-in the way that the ziggurat (the holy mound) in any Sumerian temple was a meeting place between heaven and earth, where the gods could converse with men. In other words, the ancient world seems to have automatically correlated human experience with natural phenomena.

The determinism (or \{atalism) that this correlation implies can have been no more discouraging, before the development of science, than the concept of the world as an unintelligible plurality ruled by blind chance. So, though astrology today may look to many people like sheer superstition, we should not forget that it made very good sense at a cime when man was at the mercy of a great many uncontrollable forces-the elements, warlike neighbors, the gods. Perhaps one reason why men of the old civilizations tumed to the stars was to find an antidote to the precariousness of life.

The first Babylonian Empire lasted into the first millennium b.c., when the Assyrian came down like a woll on the stars and made Babylon's lore his own. The Assyians were modified and humanized by the people they conquered. Their capital was Nineveh, but they preserved and respected the civilized city of


Babylon and the cuneiform texts in its temples. Among such texts were many dealing with those Siamese twins astronomy and astrology. The Assyrian king Ashurbanipal compiled a library of lay tablets from the earliest days of Babylonia down to his own time. In these latter texts the astionomical records become. surprisingly detailed; the stargazers had been working overtime.

This wealth of detail was needed for fortune telling. But in Babylon and Nineveh the fortune to be told was that of the state, not of individuals-except the king, who himself personified the state. It was partly for this reason that astrology never had the wide popularity in Mesopomamia that it was to achieve in Greece or Rome.

In Ashurbanipal's library many letters from priests to their sovereigns illustrate this narrow application of astrology. The tone is appropriately dry, the objects utilitarian. One priest writes to Ashurbanipal: "This eclipse of th Moon that took place has destroyed the lands . . . It has cast down the land of Amumu and the land of the Hittites and again the land of the Chaldeans. It is favorable for the king my lord . . . ." Eilipses, being such a sensaional phenomenon, naturally concerned the priests a good deal, hut their predictions were often inaccurate: "As for the edipse of the Sun, it did not take place. It is over. The planet Venus is approaching the constellation V'irgo. The appearance of the planet Mercury is approaching. Great wrall will come."

A ceiling from the Egyptian tomb of Sethos 1 (1300 B.C.). decorated with constellations, including the lion, the bull. and lunique to Egypt) the crocodile. These figures are not Zodiac signs : Astrology did mot develop in Egypt until the sixth century B.C., over 2000 years after it startedi in Babylon.


During the sixth cenury b.c., astrology caught on in Egypt. (Later, in Roman times. Egypt was to clam that she had been the pioneer in this field; but in fact she did not turn to it until long after the great thays of the phataohs.) At the same time, scientific inquiry was bursting ont in the Greek chices of Asia Minor-first of all in Miletes with the famous Thales the first European who could properly be called a scientist). Not that the Balsyonians were finisled; their greatest achievements in astronomy proper were to come. So far as time reckening went, the Greeks could still leam from the Babylonians. And the Greeks were also to becone the pupils of the "Chaldeans" in astrology, though not for a lew hundred gears. It should be noted that, whereas in Mesopotaria atronomy proper was developed later than astrology, in Greece it was the other way around.

Astronomically, then, the Babylonians made great strides-though one would not guess this from, say, the Book of Daniel, where Nebuchadnezzar's wise men ("the magicians, and the astrologers, and the sorcerers, and the Chaldeans") were invariably defeated by Daniel. (But then all the Hebrew prophets were good at propaganda. The "Second Isaiah," pronouncing God's judgment on Babylon, cries out with relish: "Let now the astrologers, the stargazers, the monthly prognosticators, stand up and save thee from these hings that shall come upon thee. Behold, they shall be as stubble; the fire shatl burn them
.0 etc.)

Ruins of a Greek amphitheatre a: Milelus in southwest Turkey. The cily was the bithplace of Theles, founder of the "Ianian" school of philosophy. Thales was concerned wish scientitic observation rather than meraphysics: because of his influence. astrology suliered a temporary setback.



It was astrology, not astronomy, that scems to have declined during the sixth century b.c. Possibly, when Babylon lost her imperial power, the skies were observed more for their own sake or for the old time-reckoning reasons than in order to bolster up the government. Anyhow, it looks as if astrology entered a slump period (except in Egypt). In view of the "Enlightenment" that swept the Greek world during the next centuries, one mirht have expected it never to emerge from this slump. But history does not work like that.

The inquiring mind of the Greek Enlightenment did not arise in a vacuum; it was conditioned by politics that were conditioned by economics that were conditioned by geography. Mesopotamia had to be politically centralized, largely because the water supply desperately needed strong government control. So the pattern was one water supply, one ruler, one religion-and hence one hierarchy of priests who also monopolized what science there was. Greece was entirely different : a congeries of city states in remote mountain valleys and islands where centralization, whether political or religious, was not possible. So whereas science in Babylon never got out of the temple, in Grecce it never got into it.

Thales and the sixth-century "Ionian Physicists" certainly had no time for astrology-though this does not prevent some modern astrologers from including them in the fold. It is casier to lay claim to Pythagoras later in the century-as, of course, astrologers do-because, unlike Thales, he had a religious bent. It has been said that Pythagoras put the "supernatural" back into astronomy. In parcicular, his mystique of numbers and his famous "Harmony of the Spheres" would make him irresistible to name-collecting modern astrologers.


In the separate city-states of ancient Greece (Iett). science (including asmology) flourished independently of religion-unlike centralized Babylon, where science was the monopoly of the priests.

Above, the Eabylonianidea of the universe: The earth lies enclosed beneath the dome of the heavens. surrounded by oceans and resting on a chamber of water, Below, the universe as conceived by Philolaus of Tatentum, a fifth-century B.C. Pythagorean. Pythagoras had believed that the earth was at the center, but Phildaus substituted a "central fire" around which the earth. a "counter-earth," the seven planets (including the Sun and Moon), and the fixed stars revolve, all attached to spheres.
sphere of fixed stars


Like the Babytonians, Pythagoras and his followers saw the universe as a system of correspondences, a unified whole made up of interlocking component parts. This is especially clear in Pythagorean astronomy. The universe, as the Master hinself conceived it, was still geocentric (as it had been for the Babylonians). But the Babylonian carth-disk had now become a sphere; Pythagoras was probably the first to maintain that the earth is round. The planets (which still included the Sun and Moon) and the fixed stars were fastened to spheres or wheels that revolved round the earth in concentric circles, each humming on a different pitch, the whole constituting the "Pythagorean Scale."

This sort of geometrical perfectionism (which was extended by Pythagoras's followers, and by others, like Plato) imposed a sort of deep freeze on the universe and encouraged others to give up caref ul observation. . Nevertheless, later centuries did see further original work in Greek astronomy. In the third century b.C., a very careful observer called Aristarchus developed the concept of the heliocentric universe, and so anticipated Copernicus by 17 centuries. But no one believed him, and the universe remained geocentric and rigid. As the astrologer's universe is also peocentric and rigid, this retrogression of astronomy can be considered one of the probable causes of the coming triumph of astrology in Greek life.


But it was not, of course, the only cause. All the ancient Greeks were by no means well-balanced ctear-eyed rationalists. There was in the Greck character and culture what Netzache calls a "Dionysiac" or irmatomat strath. After the fifth century, and largely owing to the internecine wars of the tiny Greck city states, a great gali seems to have developed between the few- the intelectarlsand the many; the fomer were no longer at home in society, Among the intellectuals the result was the appeal of rew individualist cuts Jike Stoicism and Epicureansm; and among the masses, a falling back into strecrsition and a rencwed interest in magic. Various new and very un-Greek orgiastic cults were being imported from commes like Phrygia and Thrace. And Alexanders ronquests had an effect on Grecee like that of Renaissance sea voyages upon Westem Europe.

Particular results were an increase of interest in the ancient East and better communications between Greeks and "hamarians." Some of the latter started visiting Grecee not only to acquire culture, but to spread it. All this prepared the ground for the astrologer.

In 280 r.c. the Babylonian astrologer Berosus set up a setiool in the Greck island of Cos. And in the second century me.c., a number of jopular manualsespecially one supposedly composed by an imaginary pharaoh, the Revctations

Left, the Greek fertility god (and god of wine) Dionysus, depicted with iwo followers on a sixth-century a $C$ vase. The orgiastic cults associated with the worship of Dionysus were one expression of the "irrationalism" of ancient Greece, which made way for astrology's comeback around 200 e. . Such cults were not confine to Greece: Right, a second-century A. D. Roman statue of Cybele, a fertility goddess of Phrygian origin.

of Nechetso and Pelosinis-began to circulate widely. Practicing astrologers appeared as far afield as Rome. Chaldean astrology became the vogue.

One more reason might be surgested for the Greeks' embracing astrology. For some centuries these rationalist people had been intellectually free, their own masters. Perhaps the responsibility became too heavy-and so they prelerred to give up their self-rule and place themselves in the hands of an astrological Fate.

But astrology among the Greeks (as, later, among the Romans) turned into something different from what it had been in Babylon. These younger and more individualistic peoples asked the stars not only about the nation or its rulers, but about each man's personal destiny. Astrology became primarily genelhiacalwhich, of course, is a Greek word. The long quene for horoscopes had started.

## Rome and the stars

The Romans, though in many wavs a practical and hard-headed race, were superstitious from the start, always fussing over omens of thunder or intestines or the flight of birds. This tendency, plus the influence of Greek culture and thought, opened the floodgates to astrology. For the more cultured Romans of the Republic, the new form of divination made more sense (and implied a wider view of the universe) than their own traditional forms.

But astrology appealed to the masses as well. One of the first Roman mentions of the subject was an ohjection (by the third-century b.c. poct Ennius) to various vulgar quacks, including "de circo astrologos"-which means not astrologers who perform in the circus hut those who hang aromed the circus grounds. Eunius's remark, of course, shows that astrology didn't appeal to everyone. Many of the great men of the Roman Republic opposed it. In the second century b.c., the Elder Cato wamed farmers not to go consulting "Chaldeans." And in the first century bec. a sustained attack on astrology was launched by that versatile character Marcus Tullius Cicero.

In this last chaotic period of the Republic the Romans were taking to horoscopes as if they were drugs. They seemed only too willing to swap their uneasy (if not illusory) political freedom for a tyranny that offered peace and quiet. Cicero, however, fought to forestall the break-up of his traditional world. His efforts included writing the De Divinatione, an attack on all forms of divination including astrology. "Superstition," he wrote, " . . . has usurped nearly everyone's wits and scored over human silliness."

But Cicero's opposition was in vain against the prevailing mood of the carly Empire, reflected by the poet Manilius's statement: "The world is ruled by Fate; there are fixed laws for everything." These words are appropriate to the reign of Augustus. Whatever was the case before, the stars were now running on time.

By the second century a.D., the horoscopic "science" was lully developed. Most of the astrological lore of preceding centuries was gathered together in Claudins Ptoleny's Tetrabiblos, which has been described as "the world's greatest astrological textbook." Ptolemy was concemed with the "celestial bodies" not


The ancient Greek personification of Gemini
(from an 181h-century star map). The Greeks loak their mythology into the skies by identifying constellations with gods and heroes. Gemini was seen as the twin gods Castop and Pollux.

Left, a page from a ${ }^{\text {th }}$-century manuscript of Cicero's De Divinatione (which was written about 44 B.C.). Astrology was only one of the forms of divination that the Romans used (and that Cicero attacked). Below, a second-century A.D. bas relief of another popular form-seeking auguries from the entrails of a bull. Other societies before Rome practiced entrail divination : Right, a headimitating intestines, used for fortune selling in seventh-century B C. Babylon. Far right, a fourth-century B.C. Etruscan mirror case depicting entrail divining. And oracles as well asentrails gave views of the furure: Below right. a fifth-century a C . Greek bowl showing King Aegeus of Athens consulting the oracle an Delphi.


only as astrologer but as astronomer. It was Ptolemy who invented what Arthur Koestler has called "the ferris-wheel universe," a cumbrous affair that, though accepted by everyone down to the time of Copernicus, was laughed at by Milton in Paradise Lost:

W'ith centric and eccentric scribbled o'er,
Cycle and epicycle, ort in orb.
Ptolemy's assertion of the value of astrology (or, more precisely, of the value of knowing your future) is doutble: On the one hand, foreknowledge can reconcile you to your fate; on the other, once you know the dangers to which you are predisposed, the better equipped you are to avoid them. You can take precautions against your own temperament just as against bad weather.

The Greeks seem to have been the first to combine astrology with the doctrine of the four elements (fire, air, earth, and water) or the four basic qualitics (hot, cold, dry, and moist). Ptolemy writes: "The ancients accepted two of the planets, Jupiter and Venus, together with the Moon, as beneficent because . . . they abound in the hot and the moist, and Saturn and Mars as producing effects of the opposite nature, one because of his excessive cold and the other for his cxcessive drymess . . ." He applies the same treatment to the signs of the Zodiac: Leo and Cancer are warmest ; Capricom and Aquarius, which are opposite to them, are "cold and wintry" signs.

Ptolemy, in his discussion of genethliacal astrology, is not a litule shifty on the subject of "starting points." In general astrology, "we have to take many starting points, since we have no single one for the universe"; but with individuals "we have both one and many starting points." Having rashly conceded that the best would the the moment of conception, he hunies on (since hardly anyone knows his father all that well) to clam that the moment of hirth is good enough. (This conception-bisth dilemma still worties modem astrolegers. But we might add that, long before Ptolemy's time, the authors of the Recelations of Nechepso and Petosiris had got around it by assuming that the sign the Moon was in at your conception will be in the ascendant at your nativity.)



Left, a horoscope from the earliest printed edition (produced in Venice in 1482 ) of the Teirabihlos. Piolemy's vast compilation of astrological information. Above, an illustration (irom an atlas printed in
Amsterdam in 1661) of the Ptolemaic universe-the rigid geocentric system that remained unchallenged for over 1000 years.
Around the earth rotate the seven planets
(septem orbes planetarum), each depicted as a god driving a chariol. Each planet's hieroglyph is indicated on its orbit. Beyond the planets is the sphere of the fixed stars, marked with the signe of the Zodiac and their symbols.

By Polemy's time, astrology had tiumphed thoughout the Roman Empire, the emperors themselves often leading the way. The early emperors may have kept their tame astrologers for the same reason that many too powerful men have done since-simply because their high position gave them little sense of security. The young Augusus, though a hardheaded and adculating person, was so impressed by the glorions future forctold to him (by an astrologer named Theagenes) that he: published his horoscope and struck a silver coin stamped with Gapricorn, the sign under which he was born. Tiberius had a favorite asirologer called Thasyllus (another Greek name; under the Empire the Greeks in Italy made comers in whatever neecled wits). The crazy Caligula was said to have been wamed of his impending death by a mathematicus-i.e., astro-loger-called Sulla.

In A.D. 52, under the next emperor, Claudius, the astrologers were expelled from Rome. (The historian Tacitus called the decrec "ruthess but ineffectual," adding that nearly everyone at the time believed that each individual's future is predetemined from birth.) But Nero retumed to the old ways and consulted astrologers. He was whe by some of them that if he had to leave Rome, he would find another throne in the East; one or two even specified the throne of Jerusalem.

Not only the emperos turned io the sars. Even in a thesis on arditecture: there is a passage that implies that astolosy was common knowledge-and prantice. When drawing the ground-plan of a theate, the thesis says, the best procedure is to inscribe four equilateral triangles in a circle "as the astrologers do, in a figure of the 12 signs of the Zodian, when they are making computanons of the musical hameny of the stars."


Right, the ruins of a Roman theatre (about a D 30) near Arles in France. Above, a plan of the theatre. based on the astrological method of drawing four equilateral triangles to form the circular figure of the 12 signs of the Zodiac.

Leff, a coin minted about 19 E.c. in Spain (then part of the Roman Empire) during the reign of Augustus. The coin shows the emperor's birth sign, Capricorn, operating a rudder attached to the world globe (symbolizing fome's rule over the world).



An engraving of Trimalchio"s feast, from an 18th-century Dutch edition of Petronius's Satyricor. According to Petronius, the food merely symbolized the Zodiac (beef for the Bull, etc. $)$. Here the artist has depicsed each dish in the shape of a Zodiac sign.

The establishment of astrology in Rome comes in for its shate of mockery in the Satyricon, a picaresque novel by ]etronius. part of which describes a valgar and fantastic banquet given by a vulgar and famastic "self-made man" named Trimatchio. This provincial freedman (freedmen, or emancipated slaves. had become very prominent at this time from court eircles downward) displays his "culture" by serving a plate of titbits representing the signs of the Zodiac-beef for the Bull, kidneys for the Twins, a barren sow's paunch for Virgo.

Later, Trimalchio expounds the Zodiac as follows: The heaven in which the 12 gods lise turns into an equal number of hotures-the Ram and the rest. So anyone bom under the Ram has plenty of flocks and wool and a hard head into the bargain. And so on. He himself was born under the Crab: "So I have many legs to stand on." Trimalchio also asigns butchers and perfumers to Libra, posoners to Scorpio, cross-eyed men to Sagittarius, innkeepers and nen with water on the brain to Aquarius, and to Pisces chefs and rhetoricians. "And so," he concludes, "the world turns like a mill, always bringing some mistortume, so that men are either born or die."

In A.D. 77 (nine years after Nero's death) there appeared a massive work that was to have a great influence on the Middle Ages: the Matural Jistory of Pliny the Elder. This book begins with the stars. Pliny says in his first sentence that it is right to believe that there is something divine in the world and in the sky. There is no one, he says, who does not want to know his own future and who does not think this is shown most clearly by the heavens. This remark clearly indicates the mental climate of the day.

But a generation later this climate apparently didn't suit the gloomy satirical poet Juwenal. In his longest satire, an attack upon the femate stex, Juvenal finds one of the gravest faults of women to be their susceptibility to oriental cultsand to astrology.

And Monkind, ignorant of future Fale,
Believes what fond Astologers relate.
A woman, says Juvenal (as translated by John Dryden), will consult an astrologer for the most abominable reasons :

From him your Wife enquires the Planets' Will,
When the blach jaundice shall her Mother hill:
Her Sister's and her Uncle's end would know:
But, first, consults his Art, when you shall go.
Juvenal's attack on oriental cults stemmed from his gemeral hated of all things foreign. By lis time, of course, Rome was thoronghly cosmopolitan. The Roman Empire, an astonishing conglomeration of countries and races, was geographically more unified and socially more standardized than the British Empire ever was. In literature and the arts, Grezce had taken her captor captive long before the Roman Republic came to an end. And by the time of the emperors, the Asian provinces of the Empire were also exerting a powerful influence over their mistress.

From Egypt (which had been annexed in 30 b.c.) came that peculiar bundle of mystery, the cult of "Hermes Trismegistus" (Thrice Greatest Hermes), with which astrology was closely linked. The name "Hermes" is Greck of the brightest water; but the voice is a dark voice, linking primitive and medieval man, the witch doctor's medicine and the old wives' tale. Hermes was not, of course, a real person. Like Nechepso and Petosiris, he was literally a name to conjure with.

The Hermetic literary corpus consists of 17 or 18 fragments (it was once believed that Hermes wrote more than 20,000 books); but this is quite enough to show the appeal of these esoteric doctrines. According to Hermes, there are seven human types, corresponding to the seven planets, and the 12 signs of the Zodiac govern different parts of the human body. This is the notion of the Zodiacal Man, mentioned earlier and still current today. It is based on that ever-recurring concept of correspondences. Hermes writes:
"The macrocosm has animals, terrestrial and aquatic; in the same way, man has fleas, lice, and tapeworms. The macrocosm has rivers, springs, and seas; man has intestines. The macrocosm contains breaths (the winds) springing from its bosom; man has flatulence. The macrocosm has Sun and Moon; man has two eyes, the right related to the Sun, the left to the Moon. . . . The macrocosm has the 12 signs of the Zodiac: man contains them too, from his head, namely from the Ram. to his leet, which correspond to the Fish."

This general principle of correspondence, which may well go back to the days of the pharaohs, became greatly elaborated in the Hermetic scriptures. In particular, the authors of these works went in for medical astrology. Different ailments were assigned to the various signs of the Zodiac or their subdivisions, the decanates. (A sign can be divided into three decanates of $10^{*}$ each.) Stomach troubles belong to the first decanate of Virgo, lung troubles to Cancer's second, while grout falls under hoth Aquarius and Pisces. As in most forms of astrology, these Zodiacal influences have to be correlated with those of the planets. The ears, for example, are ruled by Saturn, the brain by Jupiter.

The correspondences were extended to include, among other things, stones (certain stones are in "sympathy" with certain decanates, and help to effect a cure if the image of the decan is engraved on the stone and worn as a ring). Plants and herbs play an important role: The peony, for instance, is medically useful for anointing, for plasters, and for fumigation, and is otherwise helpful in business affairs. The directions for the peony's use are detailed: You must look for it when the Moon is waning, you can start operations when the Sun has

An illustration of the "Zodiac man" from a 141h-century German astrologica! manuscript. The figure shows the correlation of the signs of the Zodiac with parts of the human body. Man is ruled by the siars from his head (by the Ram) to his feet (by the Fish) -one example of the constandy recurring idea of "sympathy."

entered Virgo, you must be in an open place, and you must come equipped with a properly consecrated piece of seal skin. On this skin you must draw certain magic signs, then fix it around the root of the peony with genuine raw silk, uttering at the same time a long repetitive prayer, followed by incantatory words in Chaldean, Syriac, and Persian.

A further system of correspondences includes the individual fixed stars. The theme is the quadruple relationship of star, stone, plant, and talisman (or magic image). The taliman is to be engraved on the proper stone, under which the plant is inserted. Some examples of these correspondences are the following (the names in the text being usually the Arabian ones):

Aldebaran-mby-spurge-a god or man fighting; Alhaioth (Rigel)-sapphire-horehound-a man about to amuse himself with chamber music; Alhabor (Sirius)-beryl-a kind of juniper-a hare, or a pretty young girl; Regulus-garnet-celandine-a cat or a lion, or a seated dignitary; Alchimech Abrameth (Arcturus)-jasper-plantain-a man dancing or playing, or a horse, or a woll.

Many of the Hermetic prescriptions are primarily medical; but many more are obviously magical. Magic (in the form of incantations, talismans, etc.) had been in use medically and otherwise long before the Hermetic writings got to Rome. What is new here is the adulteration of astrology with such practices. But perlaps this was inevitable once astrologers, instead of confining themselves to foretelling things, set themselves up as healers.

## Enter certain Christians

Certain lacts about the second century a.d. clearly differentiate it from the preceding century. Where hare had been a series of bad emperors, there came a series of good emperors, cummating in the philosopher-ruler Marcus Aurelius (A.d. 161-80). Yet in this same period Rome for the first time had seriously to contend with two of the chiel disruptive forces that were to undermine herthe barbarians outside and the Christians inside.

Marcus Aurelius fought the fomer and persecuted the latter, and managed to stave off both of them temporarily. But neither the Danube in the one case nor traditional Roman culture in the other proved a strong enough bulwark. And where the Iraditional culture faiked, so also did the modern eclectic culture that included the oriental cults and astrology.

At the same time that Ptolemy was stmmarizing the astrological knowledge that had been accumulating for centuries, counter-attacks on these beliefs were being prepared in various quarters, both pagan and Christian. The most important (because most passionate) of these attacks came from the Christian "apologists" who were then finding their voices. And powerful voices they were. Most of their apologies for Christanity were just as much attacks on pagan doctrines, or else were angry replies to prople who denounced Christ as a magician. Usually; the Christians simply turned the tables on their attackers,
rejecting necromancy, oracks, liver divination, augury, and astrology, all as being inventions of demons.

With most of these Christian writers, their indignant replies to the charge of practicing magic fail to show a return to the rational tone and the clear light of the older Greek tradition. Instead. they anticipate the sin-ridden and fear-ridden world of the Middle Ages. The Christians were not opposed to astrology becanse it was unscientific, but because it was immoral. They tended to think that science was immoral too.

Not all the Christians as yet were completely opposed to astrology. Many of them, for instance, seem to have actepted the Star of the Nativiry as evidence of astrological truth. And the strange apocryplal work known as the Clementine Recognitions describes astrology as "the science of mathesis" (the: Greck word has the general meaning of the acquisition of knowledge). Abraham, according to the Recognitions, "being an astrologer, was able from the rational


Both a first-century A.D Roman statue of the god Pan (right. teaching a youth to playthe pipes) and a 16 th -century Swiss drawing of a devil (above) have cloven hoofs and horns. To many early Christians, pagan gods were "demons," and pagan thought (including astrology) the product of ciemons.

system of the stars to recognize the Creator, while all other men were in error . . ."

The astrological arguments (and the broader philosophical and theological ones) continued to rage, and gradually the Christians appeared to be winning the day. But paganism did not give up so easily. In the third century, many of the emperors were mystics and Asianizers. Heliogabalus (who became emperor in A.D. 218) took his name from the Syrian Sun-god, who was worshiped in Syria in the form of a conical black stone. This stone was transported to Rome (as Gibbon describes it) "in a solemn procession through the strects of Rome, the way . . strewed with gold dust ; the black stone, set in precious gems, was placed on a chariot drawn by six milk-white horses richly caparisoned . . . ."

Sun worship is not of course to be identified with astrology, but it satisfied some of the same needs. And there is no doultt that some astrologers were Sun worshipers; after all. as astrology developed, the Sun had become increasingly dominant in the heavens. (In early Christian art, Christ is often depicted with some of the attributes of a Sun-god; even as the good shepherd, while he has the lamb on his shoulder, he wears the seven planets around his head.) The later emperor Aurelian (A.s. 270-275) followed Heliogabalus in one respect: He imported an image of the Sun from the East and made Sol Invictus the supreme god in his capital.

The old Roman gods had long ceased to satisfy anyone except the uneducated or simpleminded; the Sun-god from the East fulfilled a spiritual need, and at least was a magnificent symbol. But there was another new god who could beat him on his own ground-or should we say in his own sky? -and fulfill yet more of people's needs.

The last serious persecution of the Christians took place under the emperor Diocletian in a.d. 303. Ten years later, the Edict of Milan assured freedom of worship to men of every religion. Ten years later again, Constantine became sole emperor. Christianity had trimphed; the old pagan gods of Greece and Rome and the comparatively new gods from the East were to fall alike under a shadow, and so were astrology and other "demonic" practices. At the end of the fourth century, the militant Christian fathers came in for the kill: St. Gregory of Nyssa; St. John Chrysostom ; St. Ambrose; St. Basil ; and especially St. Augustine.

Augustine had an enormous influence on the development of Christianitywhich means that he was one of the main founders of the world we live in. It is well known that this scourge of simers had once cried ont: "Lord, make me chaste, but not yet!" It is almost equally striking that utis scourge of astrologers (his arguments against them were the best known in the Middle Ages) had as a young man consulted them himself-thereby, as he later put it, sacrificing himself to demons. In his Confessions he explains that he was weaned from astrology not by argument but by hearing that a certain wealthy landowner had been born at precisely the same moment as a wretelned slave on his estate.


The earliest known portrait of St. Augustine from a sixth-century Roman fresco. Grestest of the Fathers of the Western Church. He attacked astrology on several counts, but mainly on the ground that its claim to influence human destiny challenged the supremacy of God. His arguments discreditad astrology for four centuries.

In one of his letters Augustine writes that it is better to reject the crrors of the astrologers "than to be forced to condemn and repudiate the divine laws or even the supervision of our own households." An astrologer who sells his silly horoscopes (fatua fala) to well-off persons will nevertheless "reprove his wife and even beat her-I won't say if he catches her being improperly playful, but even if she stares too long through the window." But supposing the wife were to say: "Why are you beating me? Beat Venus if you can; it's she who makes me behave like this." In other words, Augustine is saying, if you throw responsibility for your own actions on Fate, you must be consistent when dealing with other people.

Rome fell in a.b. 410. Augustine's main attack on astrology comes in his last and longest work, The City of God, which he wrote after that event and which indeed was inspired by it. Book Five of this work begins, once more, with an attack on the concept of Fate: "Those who hold that stars manage our actions or our passions, good or ill, without God's appointment, are to be silenced and not to be heard . . . Cor what doth this opinion but Alatly exclude all deity?"

Augustine grants that astrological predictions sometimes prove correct. But he ascribes their correctness to "evil spirits (whose care it is 10 infect . . . and confirm men's minds in this false dangerous opinion of Fate in the stars) and not by any ant of disceming of the Horoscope, for such is there none."

For such is there none! Augustine was a doctor of the Church and his words were all but law. What had not been accomplisted by arguments was now at last achieved by a gesture of authority. The astrologers were put in their placeoutside the pale.

For all that, even in the period of Augustine, astrology had its apologists. The famons Synexius of Cyrene, who began as a country genteman and ended as a bishop in Alexandria, maintained that astrology can prepare one for the nobler science of theology. He stressed, like so many before him, that the miverse is a whole in which the parts are bound together by sympathy. (Synesius is also said to have written on alchemy, which again of course is maled by the principle of sympathy.) One of the reasons he gives for accepting astrology is that history repeats itself becanse the stars return to their [omer positions. It is surprising that an early Christian could accept this cyclic view of history: but then the concept has appealed to a certain kind of intellectual (W. B. Yeats for one) down to our own times.

Earlier in the fourth century, there was an aristocratic Roman intellectualand Christian-who wrote a massive defense of astrology that is still today regarded as an astrological classic. This writer, Julius Fimicus Matemus, held that because the astrologer mediates between human souls and celestial beings, he must lead a pure and austere life. The human soul itself is a spark of that divine mind that exers its influence through the stars. Therefore astrology is a useful and elevated pursuit; its truth. Firmicus believes (as do its latter-day champions), can be tested experimentally.

Aside from Fimicus, there were some less well known (and less intellectual) writers who appear to be looking backward, but who in fact would have been very much at home in Europe a thousand years later. Solimus date uncertain but possibly (ourch century), wrote a hotchpoteh geography that was much used in the Middle Ages and was interested in oceult medicine. He sometimes refers to the "discipline of the stars," and repeats from carlier writers a description of the horoscope of the city of Rome itself. This retrospective horoscope apparently revealed that Rome's first foundation stone was laid by Romulus on the 11 th day of the: Kalends of May between the second and third hours when Jupiter was in Pisces, the Stu in Taurus, the Moon in Libra, and the other four planets in Scorpio.

Horapollo, another dichard (fourth or fifth century), wrote a book called Hieroghthics, to explain the hieroglyphics or written symbols of the ancient Egyptian priests. It is largely concemed with the marvelous behavior of animals (or the behavior of marvelous animals) ; but what is relevant to our subject is its astrological allusions.

According to Horapollo, the scarab or sacred beetle, so often represented in Egyptian art, rolls its ball of dung from east to west to simulate the Sun and imposes on it the perfect (i.e. spherical) shape of the world. Aso, it buries the dung ball for 28 days conformably to the course of the Moon but, to square this with the number of days in the month, is equipped with 30 toes. Anather righty satred animal is the baboon, who is bom circumcised and neither sees nor eats during lanar eclipses. He is understandably kept in the temple, since at the equinoxes he makes water 12 times by day and 12 tines by night exactly on the hour; this is why the Egyptians engraved him on practically all of their water clocks.

Pliny, in his Natural History, three to Sour centuries earlier, had been not at all averse to marvels, yet Horapollo belongs to a different world. Though both his astrology and frivolous garrulity would have been frowned upon by the Christian Fathers, his complete lack both of sophistication and of a scientific spirit parallels the Christian mentality that accepted both miracles and demons -a mentality that, combined with the overrumning of Western Europe by the barbarians, among other factors, allowed the so-called Dark Ages to slide over most of Europe.

What happened to astrology in this obscure era? Perhaps to all intents and purposes it vanished. But it is more likely that it continued to flourish (though driven underground) in spite of the Church's disapproval. When we remember how long witches enjoyed a vogue against all the odds, we may guess that astrologers could still get their lees, at least from the less sophisticated or less devout persons. What is an established fact is that astrology eventually made a comethack and was welcomed by the Church herself. But that was some centuries after the fall of Rome, and ahtad of our story. Let us go on from where the ancient world left off.

## 5 The stars on top

In sixth-century Western Europe, most thinkers rejected pagan philosophy, except for its most mystical or anti-scientific branches. So far as the natural sciences were bothered with at all, the atempt is squeeze them into a Christian framework outweighed both observation and reason. Long obsolete cosmologies were revived: A monk named Commas attacked the belief that the universe is spherical and claimed instead that it is shaped like the Holy Tabernacle as described in the Book of Exodus. But a spherical heaven is required by astrology; so here a Christian writer shows himself less scientific than the people he condemns for superstition or magical practices.

We have now arrived at the "Dark Ages," or carly Middle Ages. A hundred years ago, historians could assume that there were clearly definable borders between one "age" and another. But today, most people tend to think of these "ages" as shading or cross-fading into each other. Old concepts refuse to drop out, while new ones often jump the gun. All the same, after the sixth century, astrological writings in Westem Europe were extremely scarce for 400 years. Meanwhile, of course. Byzantium remained civilized, while, far to the west, there was a high degree of culure in Ireland. But for astronomy-astrology we have to watit thll the ninh century and then look east to Baghdad.

In that city of Arabian Nights, astronomy and astrology (still playing Siamese twins) regained some of their ancient glory under the patronage of caliphs

like the famous Harun al-Rashid. An observatory (sure prool that these studies were serious) was built in Baghdad, and was used by astrologers like Albunasar, whose book on astrology was one of the first to see print after the invention of the printing press. These proteges of the caliphate, like their predecessors long before in the same part of the world, were also great observers and measurers, as well as makers of astronomical instruments.

In the 10 h century the caliphate declined, and by the year 1000 Islamic culture had had its day in Baghdad. It was, however, to flourish for two more centuries in Spain (where an Arabian astronomer published a famous astronomical calendar known as the Toledo Tables), from which country the heritage of paganism was to fow into the rest of Western Europe. By the year 1000 the West was beginning to stir, in astrology as in other things. The 10 th century ended with the all-round scholar Gerbert enthroned in Rome as Pope Sylvester.

Though the legend quickly grew that this pope was a magician, in fact he was an intellectual pioneer. At the turn of the millenium, under the aegis of Gerbert, Cosmas's conception of the universe as a tabemacle went out and the splerical universe came in again. The Earth once more sat in the center of things, surrounded by nine concentric spheres-the seven spheres of the planets, that of the fixed stars, and Aristote's Primum Mobile. This was to become the orthodar medieval picture of the universe. It was wrong, but it was a great advance-or recovery.

In the llth century, astrology and its peripheral practices were in the air again. There were "Moon books" in circulation and "spheres of life and death" and spheres of "Petosiris" or "Apulefus" and lists of "Egyplian [i.e., mulucky]

days" about 40 or 50 of them in the yeary. And by the l2h century astrology had become thoroughly re-established as a shhjer of serious study.

The views about astrology of the clerigal intelligentiat varied, hat they all were concerned with it, and with relating it to other branches of learning. An anommous 12 th-century manuscript. for instance, romects different religions with different planets. Judaism is alloted to Satum, as it had beon by the Roman historian Tacius. Islam, being a religion both sensual and warlike, falls under bohb Vemus and Mars; its holy day is Priday becanse flat is Venus's day. Christianity under the Roman Empire was related boh to the Sun (which stands for honesty, liberality. and victory and to Jupiter (which stands for peace, equity, and hmanity. It is noted by the l2h-century writer that neither Mars nor Saturn is ever in afiendly relationship witl Jupiter. Later, the Christian seligion became assigned to Mercury : acconding to Roger Bacon in the 13th century: Aercurys diffocult orbit corresponds 10 the Christian mysteries. Also, Mercury is dominant only when in Virgo, which in this context could be equated with the Virgin Mary.

Astrology by this time covered all fieds, from the sublime to the ridiculous: "William of England," who apparmly was a citizen of Marseilles, wrote a Heatise called De Urima mon Visa (Of Urine Unsecn), explaining "how by astrology to diagnose a case and tell the color and substance of the urine without secing it."

At this time some astrologers divided their subject into cigh branches: the science of judgments (i.e., judicial astrology): madicine; "nigromancy" ; agriculture: illusions, or magic; aldemy; the science of imates; and the science of

Left, the "sphere of Apuleius" (from an English prayer book written about 970 ). probably used to predicl whether a sick man would live of die. The iwo figures symbolize life and death. The fate of the sufferer was determined by adding the numbers corresponding to the day of the week and the month to the numbers set against the letters of the sick man's name. and dividing the totol by 30. It the result fell below the line mart:ed sub terra (underground) the man would die : it above, he would live.

Taking dips into the future still fascinates people today, whatever the method Ferinstance, in The Ladies" Oracte (right), published in Britain in 1962, the reader chooses one of 100 questions about the furure, picks a symbol from a chart with lier eves shut, and relates the two 10 get her answer. Sample question: Shall I be loved long? Answer: As long as you deserve.

mirrors. The inclusion of nigromancy (necromancy) and "illusions" was the catse of astuology's bad name in rentain quaters, while it is interesting that ateheny should be treated as a branch of astrology instead of as a parallel scicnce. The msterious "science of mirrors" was divination by means of polished or reflecting surfaces rubbed with oil, usually in accordance with the astrological hours. Though to a modem reader this practice might seem nearer to optics than to astrology, it provides further proof of some kind of association in the Middle Ages of the natural sciences with the "sciences" of astrology, magic, and fortume telling in general.

In an attempt to find a rational hasis for astrology, various spurious works were attributed to Arstotle foho was acquiring an anthority almost equal to Holy Writ). Thus we have "the book of Aristotle from 255 volumes of the Indians containing a digest of all problems, whether pertaining to the sphere or genethlialogy." Aristote"s mame (his would have puzzed him) was being linked with that of Hermes diso atributed to him was a work called The Secret of Secrets. which was very populat in the Middle Ages and contaned plenty of astrological lore, comelated (in the manmer described in Chapter 4) with the virtues of herbs and stones.

Before leaving this century of revivals, we may note that in 1186 the much trusted Toledo Tables foretold a comjuntion of the seven planets in Libra. which was bound to cause terrible disasters including burricanes. The conjunction occurred-but not the hurricanes unless they took place in some maknown part of the world, like Floridis).

In the 13 hh century the astrologial pace berame even hoter. In England the center of kaming was the new mivessty of Oxford. Leaning, of course, included astronomy, and astronomy included astrology. The fist recorded chancellor of the university, Roben Grosseteste, accepted astronomy-astrology as the supreme science and held that hardly any human activity, whether it were the planting of vegetables or the practicing of alohemy, cond dispense with the astrologer's advice.




Above, an early i8th-century engraving of Catherne de Medicis (queen of France 1547-89) consulting a magician-possibly the prophat-astrologer Nostradamus The magician (standing in a magre circle of asurological signs) reveals to the queen in a mirror the faces of future rulers of France-an example of prediction by the "science of mutrors.

Left, a ninth-çensury copy of a sixth-
century world map by the Alexandrian monk Cosmas The Creator presides over the world whinn a universe shapedlike the foly Tabernacle in the Book of Exodus. This concept of the universe was widespread in the Dark Ages, though the splerical universe came back into favor about 1000

His pupil, Roger Bacon (who was suspected in his own time of practicing magic, which in fact he condemned), distinguished two kinds of "mathematics," one being magic and the other legitimate judicial astrology. Bacon beliesed in "elections" (i.e., using astrology to choose the right hour to do something) and also in astrological images and astrological medicine. This last, for Bacon, explained the remarkable case of "the woman of Nomich," who ate nothing for 20 years but retaned her health. Also, as a good Franciscan friar, he welcomed the astrological prediction that Islam would endure, from its beginning, for only 693 years. This figure. he says, agres with the famous "Number of the Beast" in the Apocalypse, which in fact (astrological license?) is 666. Whether the Moskm Era is dated from A.n. 610 or 622, this prediction meant that Islam should have ended near the beginning of the 1 th century. Bacon himself died in 1296.

A great academic name on the continent was that of the Dominican Albertus Magnas, the master of Thomas Aquinas, Abertus was a typically medieval figure in that he combined very high inteflectual powers with what (to us) seems a naive credulity, He believed in the magical use of herbs; and he was probably the author of a popular work entited The Secrets of Whomen, which included the astrological doctrine that a child receives its sarious qualities from the different heavenly spheres. Also, according to this work, each planet has control for one month over the child in the womb. And it is the constellations that accome for monstrous birthes.

It was Albertus's pupil St. Thonas Aquinas who imposed system upon the body of existing knowledge in the Middle Ages, and thereby imposed a "Thomist" world-view upon Western Christendom. Even he allows that the stars have some influmce: They serve as media between "the separate intelligences" (such as angels) and our material world. God rules inferior creatures through superior creatures, and so rules our carthly bodies through the stars. But Aquinas leaves room for free will, as did the poct Dante, whose whole Divine Comedy presupposes a Thomist universe. There are several passages in the Ditine Comedy, and elsewhere. acknowledging or implying the influence of the stars. In the "Paradiso," referting to the fact that he was born under Gemini, Dante writes (in the Temple Classies translation): " O stars of glory, O light impregnated with mighty power, from which I recognize all, whatso'er it be, ny genius. . . ." A striking passage, which looks back to Augustine, is to be found in the "Purgatorio." Canto XVI, where Dante asks one of the suffering spirits about the causes of vice. The spirit replies: "The heavens set your inpulses in motion; . . . but . . . a light is gisen you to know good and evil, and free will [thero inder], which, if it endure the stan in its first batlings with the heavens, at length gains the whole victory. . . . Ye lie subject, in your Freedom, 10 a greater power and to a better mature; and that creates in you mind [la mente], which the heavens have not in their charge. Therefore, if the world today goeth astray, in you is the cause, in you be it sought. . . ."

## Guben Retutctorfigrofien शilto

 Zratragnarifolgen bernad.


## j. Gotwurt Eaturni.


 gemtivar.

 (omardorn fie entiobigt.





Above iwo pages from the Naturalia (printed in Garmany in " 548 ) by Abbertus Magnus, dne of the great 13 th-century Dominicanteachers Albertus related the magical and medicinal properties of herbs to planerary and Zodiacal influences-another example of the idea of correspondences. Of the iwo plants shown here, ileg Managon lily (lell) is "in sympathy" whth Saturn, whotules Capricorn and Aquarius and cincory (right) is "in sympathy" with the Surt. Who rules Led.

Right. a 13th-century seal (probably made for Robert Grasseteste) depicting a chancellor of Oxford surrounded by scholars. Gresseteste was an ardent advocate of astrology. which was studted at Oxford as at most other medieval universities,


## for cix ucac dizana ita to toto Ferep fors ghompartain. fitaudif coliz alcbun tal tutto. maio nol urol ncato dx fal Scolo atifa lotos prarou frutro. ot tuatocaonco: panfa puitefio. chomo porat tuct rition afautio. Quarroliz nofta vinaguc oupecto. uovifixita dxy punto ocatiocdy. : Thatelx pakiul per to fato.



Above an illustration from e 15 th-century Italian manuscript of Dante"s "Inferno' Dante (center, in blue) is led by his guside Vergil to see the lartune tellers in hell, whose heads are twisted so they can only look backward. This is their punishment for tooking into the future (which is the prerogative of God). Right, a 15 Sh-century portrayal of Guido Bonatti, one of the mos! famous astrologers of the 13 in century. who was among the sorcerers consigned to hell by Dante. In spite of the Church's opposition to his unorthados views. Bonatti escaped the long atm of the Inquisition.


Thus mans "nature" subject to the stars) is in opposition to a "bectur nature" (which must be refered io God). The lact that here will has to batte with the stars imputes atere great powe to them; ncither Dante nor Agumas would have dremed of denging this. Repatedly guoted during this prood was a Latin tag: sapions dominabiar astris-the wise man will rale the stats. It was still being quoted in the lith contury and no doubt was so popular just because people were so frightened. It was both a picee of "wishful thinking" and a gesture, though a catuionts one, of defiance.

Among Dantes contemporaries and immediate successors, the hugre wings of astrology gave sheter to all types of man. from truth-seding philosophers to proftesecking quatks, and to all types of opinion from the profond to the cranky. A 13 hatemtury monk, Risworo of Arezzo, believed that the northern part of the sky was the nobler and that therefore only the northem hemisphere was inhahited; he also was much interested in the horoscepes of horses. One Thomas of Camimpre held that the brans of wolves and the livers of mice vary in size with the waxing and waning of the Moon. The franciscan Chomicies (lyy a Franciscan friar named Salimbenc) provide an engaging 13 thecentury example of an astrological quack (ramslared by G. G. Coulton):
"The Inner Party of Modena [in Northem Italy] had a man of Breseia who called himself an astrologer and diviser, to whom they gave daily ten great pennies of silver, and nightly thee great Genoese candes of the purest wax, and he promised them that if they fongh a third time they should have the victory. And they answerd him: 'We will not fight on a Monday or a Tuestay, for we have been emquered on those wo days. Choose ws therefore another day; and know that if we gam not this time the pronised victory, we will lear out thy remaining cyil eye" for he was one-eyed. So, fearing to be found out in his falsehood, he caried off all that he had ganed, and went his way without saluting his hosts."

Italy 5 ems during the Middle Ages to have been the leading country in astrology, which infiltated not only into the Ghurch but into the new miversities. Thus in the school of medicine in Bologna in the 13 th century the dictuns quoted earlier ran: "A doctor whout astrology is like an eye that cannot see." A century later Bologna had a chair of astrology.

Astrology was popular not only among men of leaming in the Middic Ages. By the 13 ho century it had become fimpembedded in the everyday life of the people. The JGh-century Swiss historian Jacob Burcklated writes: "In all the better families the horoscopes of the children were drawn as a mater of course, and is sometimes happoned that for hall a lifetme men were hauned by the idle expectation of events that never occumed." There were many instances of astrologers intervening in public affairs. strh as the journeys of princes, the laying of foundation stones, or the management of military campatgs. One of the most famons astrologers of the 13 h century, Guido Bonatit, atsisted the Ghibethine leader Guido da Montefelto on wid a series of battes.

When the constellations were right for victory, Bonati used to ascend a high church tower with his hook and astrolabe and at the exact moment give the signal. The great bell was then mong and there was (presumably) victory.

In Bonatti's influensial Latin book the Libar Astronomicus the used the words astronomy and astrology interchangeablyy, he ranks the astronomer-astrologer above the physician, because human bodies are merely composed of the four clements with the fou qualities, whereas the bodies studied by astrologers are composed of a fifth and incompuptible essence. The opposition that Bonatti's teachings met among the clergy was not sumprising, seeing that he held that astrologers know more about the stars than theologians do about God. At the same time he reveals that many of the dergy in the 13 th century consulted astrologers about their prospects of promotion (which is a good example of an "interrogation").

Bonati himself chamed to believe that, if you are hesitating to accept an invitation to dinner, the astrologer can help you by predicting the menu. As regards "elections," he held that there was a favorable moment for almost every possible activity, including trimming one's nails. In the field of "revolutions," he thought astrologers could foretell which would be a good year for bishops, monarchs, or cucumbers.

Many other astrologers of the time got into serious difficulties with the Church—like the physician Amald of Villanova, who wrote a treatise on Judgments of Inflmities by the Mouments of the Ptanets. Though Arnald moved in high ecclesiastical circles, the Inquisition (whose attitude to astrology often appears ambignous) declared some of his writings heretical. Another suspected heretic was Peter of Abano, also valled Peter of Padna. Peter was a champion of astrological medicine and of images: He believed that a figure of a scorpion made when the Moon is leaving Scorpio will cure the bite of a scorpion. He also held that the revolution of the eighth sphere (that of the fixed stars), which, he reckoned moved one degree in $\bar{i} 0$ years, could even turn land into sea; hence the disappearance of Adantis.

Peter distributed history among the seven planets, each being in charge of 354 years phis four huar montis. Thus Sodom and Gomorrah were destroyed when the Moon was suppente. (Some modern astrologers carve history into much larger slices-of roughly 2000 vars cach-determined by the consiellations.) The seven planets, according to Peter, are also associated with seved angels; Mercury is paired with Raphael, the Moon with Gabriel, and so on. What may have involved him with the Church authorities was his discossion of Christ's nativit!: It was said that Christ was bom when there was a great conjanction of Jupier and Satum in the beginning of the first degree of the sign of the Ram (which of couse was the very begimning of the Zodiacal system).

The retrospective casting of the mativity of Christ was at this time commonly linked whth the prospective casting of that of Antichrist, presumed to depend on a conjunction of Jupiter and the Moon. This also shocked the authorities. But


The original Royal Observatory at
Greenwich. which was buill for the first
English Astrongmer Foyal John Flamsieed
Flansteed is sald to have chosen the date
for laying the foundation sione by means
of an astrological "election" (erecing a horoscope to lind a favorable time for a particular project). The dare selected was August 10.1675.

Peter weathered whatever storm there was. There is a statue to him in Padua, on which he is described as "in astrology indeed so skilled that he incurred suspicion of magic, and, falsely accused of heresy, was acquitted." Less fortunate was Cecco diAscoli, who had taught astrology at Bologna and had been court astrologer to the Duke of Florence. He was condemned by the Inquisition and burned at the stake in Florence in 1327; orders were also given to burn his Latin astrological book. One of Cecco's heresies seems to have been that he taught that Christ came to earth in accordance with the will of God and with the principles of astrology.

In spite of Cecco's fate (which was most untypical), astrology continued to flourish in the Middle Ages. Italian artists glorified it in frescoes like those in Padua and Ferrara, and in the 15 th century those ruthless adventurers the Condottieri each had his own pet astrologer. And Lorenzo de' Medici allowed Marsilio Ficino of Florence to cast all the little Medicis' horoscopes.

Astrology also played a part in the literature of the period-as in the poetry of Geoffrey Chaucer, who was born about 20 years after Dante died and who died himself in 1 to0. Chaucer is a typical mediesal figure. Although most of the astrological references in his Canterbary Tales would have been commonplace to his readers, his own astronomical-astrological knowledge was better than commonplace. He pretends modestly in one passage that he knows "no termes of astrology," but he found time and was interested enough to write a treatise on the astrolabe. In the Prologue to the Canterbury Tales, he has hardly begun describing lis Doctor of Physic before he mentions, high in the list of credentials, the Doctor's astrological knowledge, which includes the use of images. Similaty, that carthy lady the Wife of Bath brings in the stars to explain her own distinctive temperament:

Venus me yaj my lust, my likerousnesse [lecherousness],
And Mars yaf me my sturdy hardynesse;
Myn ascendant was Taur and Mars therinne.
According to Britain's Ingrid Lind, writing today, "Taurus women are goodlooking and have solid, well-made bodies [the Wife of Bath had a bold red face and large hips] with a good notion of what such bodies can produce in the way of agreeable sensation."

On the whole, Chaucer seems to have taken his astrology with a grain of salt. (He took plenty of salt. of course, in other spheres, being a typical English empiricist and good-humored iconoclast.) In his longest and most technical astrological passage, in "The Franklin's Tale," he speaks of an astrologer who is setting out "to maken his japes" (i.e.. uricks) with his "supersticious cursednesse." Chaucer is obviousiy no admirer of this astrologer (or "magician"). A lovesick young Englishman has come to consult him, and the magician is about to calculate by astrology the right hour for contriving a monstrous illusion for his dient's benefit. Here is some of the description of this operation (from Nevill Coghill's modemized version, for easier reading):


Above, an engraving from an 18 th-century edition of Chaucer's Canterbury Tales. showing the Wife of Eath as the center of altraction. Though Chaucer was no admurer or astrology, he often referred to it : For example. the Wife of Bath atributes her boldness and eartity vigor 10 her ascendant sign. Taurus. Fight. a i Gih-century astrologef's idea of a Taurus woman, showing the heavy features traditionally ascribed to people inlluenced by this sign.


His calculating tables were brought out
Newly corrected, he made sure ahout
The years in scries and the single years
To fix the points the planets in their spheres
Were due to reach. . . .
And finding the first mansion of the Moon,
He calculated all the rest in tune
With that. He worked proportionally, knowing
How she would rise and whither she was going
Relative to which planets and their place.
Equal or not upon the Zodiar jace.
Not long after this, in i5th-century France, we find an attack on astrology in the form of an allegory. The Dream of the Old Pilgrim, by Philippe de Mézieres. The secne is a debate in Paris presided over by Queen Verity. An aged hay enters, wearing a robe embroidered with geometrical figures. She holds a brok ist one hand and an astrolabe in the other, and wears spectacles because she is nearly blind from stargazing. In her time. we learn, she has been in the employ of King Ptotemy of Egypt, Albumasar, and Neptanebus. Her name is Old Superstition.

Opposing her is a lady delegate from the university of Paris. She is only 18 years old, and wears a close-filting green dress (which gets greener every moment) and a beautiful green hat with 12 flowers of a ravishing seent around the brim. In one hand she holds a flaming cross, in the other a compendium of theology. Her name is Bonne Foy; and, needless to say, she wins the debate.

Her argument rests on a basic distinction between the two kinds of astronomy (or, as we should now say, between astronomy and astrology). Old Superstition, though discomfited, sweeps of saying she will still find followers among both laity and clergy, not to mention royalty. Bonne Foy returns to the university.

Astrolous did lind followers elsewhere. Nearly two hundred years later, the Elizaluethans still readily accepted the astrological mode. Even a man with such a reputation for free thinking as Sir Walter Raleigh was prepared to concede that there was something in astrology, although (like so many before him) he was carefut to leave room for free will. And Raleigh. for all his inherited medieval concepts, was standing on the threshold of the world we know.

[^4]

## The Renaissance

Newton's Princitio was published in 1687. The two preceding centuries had been a period of constant, almost unprecedented intellectual ferment and discovery; yet through at least most of the period there are plentiful examples of dichard traditionalism and, even among the innovators, of an ingrained reluctance to go the whole way with themselves. The pioneers of modern astronomy were still hampered by medieval modes of though. It was only with Newton that men's minds appear to have been finally freed from the medicval shackles (or, depending on your viewpoint, the medieval supports and underpinning).

This is where astrology comes in-or rather stayed in. In 1488 the prominent astrologer Johannes Lichtenberger wrote: "Attention must be paid to the weighty planets Jupiter and Saturn, whose conjunction and coincidence threaten tervible things and announce future calamities . . . and to this terrible conjuncdion the horrible house of the ill-fated Scorpion has been assigned." And a preface to another of Lichtenberger's books states: "The signs in heaven and in earth are surely not lacking: they are God's and the angels' work, and they wam and threaten the godless lands and comories and have significance." The author of this preface was Martin Luther.

Even while Luther was underwiting the astrologers, the Italian humanist Pico della Mirandola was preparing a massive assault on astrology. Over and over again. Pico makes one basic (and radical) distinction: between astrology and astronomy. This distinction was not observed by 15 h -century astronomers like Regiomontanus-or, for that matter, by their more famous successors, such as Kepier. In the mid-15th century, Regiomontamus was an outstanding astronomical observer and inventor of instruments; but he also introduced the particular division of the sky into 12 houses that is used by many astrologers


An illustration from a work by the 15 th century German asirologer Johannes Lichtenderger, showing the "terrible conjunction" that to Lichtenberger, meant calamity. The sign of Scorpio hevers over personifications of Saturn (right) and Jupiter (with Taurus).
today. To Pied, howner, the astronome (or the true plilosopher) does not bedieve or affirm anything that cannot be demonstated by evidence or by reasom.

Pico also attacked asmology on the evidence of his own experience this widence consisting largely of disasters in his family. Astrobogers had promised his brother-in-law a tear completely free from danger or misfortune: he died in the conse of it. The same thing happened to Pjors neplew-in-law and sister-in-haw, The siscer-in-law, in fact, while she clasped her husbands hand on her deathbed, had exelamed: "Look! So much for the predictions of astrologers!" Her husband, on the other hand. Jad been promised every sort of misfortune and had survived the year unscathed.

At about the same time that Pico was preparing his attack (and when the young Copenticus was studying at Cacow Liniversity), an astrologer called Luc Gaturic erected the horoscope of the young Giovanni de' Medici and prediced (comectly) that he would become pope. The Italian nobility were by then making a resular practice of employing astrologers. But this does not mean that the "royal" art was not also exceedingly popular among the common people. In the same year (1493) that Gauric made his prediction, a work was published in Paris that has been extensively quoted from in earlier chapters -The Kalendar and Compost of Shepherds. The art of printing was barely half a cennery old, and this was one of the very first books to be printed for the amusement and instruction of the ordinary literate man. It was widely popular and was reprinted in many cities of Europe.

Whocver was the author of this lrook put his lore into the mouths of shepherds (in accordance with an ancient literary tradition that made shepherds the repositories of wisdom). A good patt of the wisdom in this "Compose" is, as we have seen, familiar astrological material. The author accepts the division of the sky into 12 houses (the House of Life, the House of Substance and Riches, and so on) and also the doctrine that ead hom is muled by one of the planets. He stips from prose into verse wien he comes to the planets' quatities. To quote from a translation of about 1518 :

For to know their natures all
In sooth it is a great conning.
And showes what mar befall
When every flane is reigning. . . .
Saturn is highest and coldest, being full bad,
And Mars with his bloody seord ewer ready to kill:
Jupiter wery good, and Venus makeh lobers glad,
Sol and Luna is half good and half itl . . . .
Inmediately preceding the astrological section of the beok there is a section cotited "Of Physic and Govemance of Health." The firs part of this section is captioned: "How shepherds by calculation and speculating knoweth the twelve signs in their course reigning and dominating on the twetre parts of a man's body; and which be good for letting blood, and which be indiferent or



Ulter $\mathfrak{B a u c r u f a I e n d e r ~}$
 nomy of man's body that shomeh in what pants the seren phanets hath domination in man." The chapere in fact consents of a picture. This was the kind of teaching that was most reatily ateptable 10 people in general in the lifetime of Coperncus. the Polish cletio who desosed the Poblemaic universe.

Whether Copromas himsels believed in astrologey or not, the dustrian prow
 of astrolosy to sell the Copernican revolution. In the midelle of at comeet accoment
 digression in which among other things the Geond Coming was made dependent on thanges in the ecomricity of the Earth's ortsit.

Santy of the hest minds of the age certanty could reonele astology with a more "scientific" approath to their own subjects. From the Christian Fathers down. the had alwats bern ohjections as astrogy on edigions gromds. Seimifie eonsderations in the 16 th cemury were just as likely on predispose scientist, or at any rate astronomers, in its favor. A notable example is Tyso Brahe ( $1540-1004$, one of the firs great observational atronomers, who spom much of his time casting horwapes. White he may have done this with his oongue in his choek he ronsidered all other astroloures charlatansf or mainly to obige his friends. he did bediew that the stars inflaenced a man's characher and life. He backed up his helief with history. "In 1593 ," he wrote, "when a

Left. a woodcul from a 1527 edition of The Kalendar of Shepherds shows sheep shearing in Jure attended by the month's Zodiac signs - Gemini (topright) and Cancer (botom right). Astrological calendars still appear ioday: Below left, the cover of a 1962 Austrian farmers" calendas, which provides details of weather and Zediac influences.

> Below, a diagram of the heliocentric universe from Copernicus' De Revolutionibus (1543). The Sun, at the center, is surrounded by the orbits of the seven plenets (in their true order) and the sphere of the fixed stars. Thistevolutionary concept finally displaced the Piotemaic. or geocentric. idea of the umiverse,

great conjunction of Jupiter and Saturn took place in the first part of the Lion, near to the netoulous stars in Cancer, which Ptolemy calls the smoky and pestilent ones, did not the pestilence whith swept over the whole of Europe in the years that followed, and caused inmmerable people to perish, confirm the influence of the stars be a very certain fact?"

And Tycho did make one famons prediction. Writing in 1572 on the astrological significance of a comet that had appeared in that year, he predicted that the comet's influente would be greatest in 1592, when a man would be borm in Finland "ordained for a great enterprise" in a religions cause. The comet's effect would also be strong in 1632. which. 'Tycho added, would be the date of the man's death. The carecr of Gustavus Adolphus of Sweden fitted the prediction almost perfectly. He was bom in 1594 (not 1592 ) in Stockholm (not precisely Finland, though Finland was at the time a province of Sweden). But these were the only inconsistencies. Gustavis was one of the gratest champions of Protestantism of the century and led his ammes to great viotores in the Thirty Years' War (primarily a religions warj). And he was killed on the fued of his most glorious victory, the batte of Liitzen in 1632 -at victory over the German imperial forces commanded by Wallenstein.

The irony is that it was Tycho who dealt a serions blow both to Aristotelian cosmology and to astrolosy by proving with his instrments that the famous new star of 1572 -the short-lived "nowa" that appeared near Cassioperia-was


Left, an illustration of a sextant from Tycho Brahe's book on astronomical instruments. With the sextant he proved that the new "comet" of 1572 was actually a fixed star, thus shattering the traditional idea of the immutability of the fixed stars. But, though a pioneer of modern astronomy, Brahe remained an astrologer-as cid the asironomer Johannes Kepler. In 1624 Kepler cast the horoscope of the famous German general Wallenstein and predicted from it that March 1634 would bring "dreadful disorders over the land." Wallenstein was killed on February 25.1634 (depicted in a 17 th-century print. right).
a genuine "fixed" star brtonging to the eiphth splere (which traditionally was assumed to be free from munhility. This asounding phenomenon (at its brightest it could be sem at midday had, to sam with. given astrologers a fold day. They weated it as anster omen: one theory was that, thombh lackiner a tail. it was a comet, condensed onf of lmman sins and tomed off the the wath of God. Some also thonght that it formold the Seomd Coming. But to consider it a frefo star was astologial and Arsutelian hasphemy. In proving is true status. Tyeho mantmionally gave support to the Copernican system (which he did not accept), and also to tris yome collaborator kepler (1571-1630), who was one of the yreat archite ts of the astronomical revelution.

There is no doubt that Kepler was a genins who, in his own words, "elonased the Augean stables" of traditional comology. At the same time be was a confused and confusing chatacter: his referemes to astrology often seem ambisalent. Einstein wrote that Kepler's remarks on astrology "show that the inner ememy, conguced and rendered imomous, was not yet completely dead." In fact his "imer enemy" was probably more alive than Einstein assumed. Like Tycho. Kepler had to pratioe astrology whether he liked it or not. Also like Tycho, be thought or wanted to think there was something in in somewhere. As a young man he poblished ammal astrological eatendas, which no domo he had to do in order to furtare his catect. Thus for the year 1.595 he predieted mass among the prasants of upper Austria and the flight of the Austrians

hefore a Turkish insasion. Soth these predictions came true, though they were probably just shrewd guesses.

In a letter in 1598 to his old tutor Mästin. Kepler writes of his most recent calendar: "As to atl the prognoses. 1 intend to present to my above-mentioned readers a pleasant enjoyment of the grandeur of nature along with the statements whidh appear true to me, thus hoping that the teaders may be tempted to approve a raise in my salary. . . . If you agree with this you will, I hope. not be angry with me if, as a defender of astrology in word and action, at the same time I try to implant the opinion in the masses that I am not an astrological tudfoon." In 1611, writing to a confidant of his patuon the Emperor Rudolph (at the time involved in a crisis), he makes a distinction not between astrolosy and astronomy bun between wo kinds of the former: "Ordinary astrology . . . can easily be used to please boh parties. I beliewe that in such weighty reflections one should not only exclude ordinary astrology but also the one which I have recognized as being in acoordance with nature" (italics mine).

Fepler knew what was not good for emperors or for the masses; and, whatever trub he may have found in astology, lo obviously loathed the way in which it pandered to human credulity and wishful thinking. Twenty years later, he scoffed at what obviously was one of the sensations of the day: "A siil of eleven living in Kotbus prophesies the end of the word. Her age, her infanile ignorance, and the number of her listeners have previded her wih a faithful followinge,"

Some peculiarites of Kepler's views of astrology are discussed (in terms of Jungian psychology by the physicist W. Pauli, in an essay entited "The Influence of Archetypal Ideas on the Scientific Theories of Kepler" (translated from the German by Priscilla Silz). Here Kepler appeas to be what orthodox astrologers might call a mysical deviationist: Pauli comments that his "peculiar conception of astrology met with no recognition." This conception linges on the sellar rays; Kepler believed that the rays strike the earth at different angles and form harmonious pattems comparable to those of music. The soul, he says, recognizes these patterns instinctively and wihout conscious reflection "because the soul, by virtue of its circular form, is an image of God in Whom these proportions and the grometric truths following thereupon exist from all eternity." And he adds: "Il I should express my own opinion, it would be that there is no evil star in the heavens. . . chiefy for the following reasons: It is the nature of man as such . . . that lends to the planetary radiations their effect on itself [italics mine]; just as the sense of hearing, endowed with the faculty of discerning chords, lends to music such power that it incties him who hears it to dance."

This was a revolntionary idea in astrology: Kepler was, so to speak, transferring the initiative from the stars to man. He goes so far as to say" that "the soul bears wihin itsell the idea of the Zodiac." This apparent transposition of the astral and heman roles, combined with Kepler's insistence on instinct (which would. Sor example: invalidate the traditional use of books of ephemerides), makes
it not at all stuprising that his theories mot wibh no tecogntion. Noblace the


In 1008 , when Kepler was in his prime the telear ope was intonted. Within two years Gatileo had necd it to show things commary to dristenle: he published
 here delivered were sensational, and not exryone whomed them. The Moon, for instance, uaditonally thotgat of as a perten enstallime sphere, was now dedared to have a highty irregulat surace And there were vasty more fined stats than amone lad eber themph. Worse than that. Gatile had diseoverd fons new "planets." These were, in fath. He satelles of jupiter, ban heir diso overy was mearly as disumbing to atational athtudes as the later disenveries of the thee planets proper-Croms, Xepluns, and Pluto. All this hin the astrologers at heas as hard as anyone olse. Not that this would have worried Gatileo. In Kepler the sheptic and the mystic were intertonked, but Gatifor was a consistem dehunker- Wrough even lue like Kepley found Limsel! sometmes
 his patron, the Grand Duke of Tuscaty, promising him bong life. The Grand Duke died a few weeks later.

Two pages from Gandeos The Star Messenger (1610) Gaileo's discovenes of new starsmade with the newiy invented ielescopehelped to discredit the old cosmologr of the astrologers.


After Kepler and Galileo, and largely because of their own discoveries (which were suspect to the forces of the Counter Reformation), the scene of scientific inguiry shifted to northern Europe and particularly to France, the country of Montaigne and Descattes, and to England, the country of Erancis Bacon and Newton. Francis Bacon is generally regarded as the herald of the new era; unlike Galileo, he was not himsell a scientific observer and experimenter, but he passionately believed in observation and experiment and made eloquent propaganda on behalf of them. Nevertheless, the mass of works produced by the English astrologers proves that they enjoved a larye public. Early in the 16th century, the famous Dr. John Dee (who also practiced alcheny and crystal gazing) was casting horoscopes for the Tudor roval family. He was later patronized by Queen Elizabeth, Dut it looks as if his successors made their living on the whole from much humbler clients, who not only believed in astrology but found that it gratified the prevailing taste for the marvelous. On their maps it said "Here be dragons." In the stars it said "Here be your own dragons."

Elizabethan literature makes it obvious that people's forms of expression were conditioned by such long-accepted concepts as hose of astrology and of the four humors. We have only to skim through the poets and playwrights to see that it was second nature to them to use astrological terms (though for technical knowledge of the subjece they could not have competed with Chancer). In Christopher Marlowe's Doctor Faustus, one of Faustus's friends asserts:

He that is srounded in Astrology, Enriched with tongues, well seen in minerals.
Hath all the principles Magic doth require.
(Here we have the old linking of astrology and alchemy and the familiar subsumption of both under magic.) In Edmund Spenser's Fafrie Queene, when the months parade in the so-called "Mutability Cantos." each month eirher rides upon or is equipped with a Zodiacal emblem. (ln fact, of course, the emblems should change about the middle of each month.) Some of their mounts are rather awkward: "Joly' June" is carried by a crab "Winh crooked crawling steps an uncouth pace." And as for February:

And lastly, came cold February, sitting
In an old acagon, for he coudd not ride:
Drawn of two fishes for the season frting . . . .
Pisces being traditionally represented by a pair of fishes. All this of course, is mere visual illustration, but it should be remembered that the Crab or the Fishes, cven though cliches, meant as much to Spenser's readers as Freudian cliches mean to the average scader in the 20 th century.

Shakespeare is full of asuological allusions, which come in very handy when a character wants to comment on the unfaimess of it all, as when in King Lear the contrast is pointed beween the wo wictied sisters and Cordelia:

It is the stats,
The stars aboed us govern our conditions.


Above. a 17 th-century English carmoon of an astrologer weighing bags of money taken from clients. In spite of the scientific advances of the periad, astrology stayed popular with the majority of people, and contmued to be reflected in the literature of the periodfor example, in Chrisicpher Marlowe's Dr. Faustus (1601), one of many versions of this legendary mbgician's career. Righa, a 97 im century English woodcut shovsing Faust conjuring up the devil with the eid of e magic Zodiacal circle.


But in the same play the bastard Edmond produces the cynical view of astrology: "This is the exceltent foppery of the world, that when we are sick in Iormae-often the surfeit of our own behavior-we make guilty of our disasters the Sun. the Moon, and stars. . . ."

Of oher Shakesparean characters who draw on this pool of imagery and excoses, Antony complains that he is deserted by his "good stars," while Cassius, in a Camons passage in Fulus Caesar, makes the same point as Edmund but with more dignity :

Men al some fime are masters of their fates.
The faull, dear Bratus. is nof in our stars,
But in ourseleses, that we are underlings.
In Shakespeare's momantio comedes there is Beatrice's remark about herself in Much Ado about Vothing: "There was a star danced, and under that was I born"; loward the end of the play her sparring parmer, Benedict, says wryly: "I was not born under a rliyming planet, nor can I woo in lesival kems." A more britue example comes from - th's well that Ends Well, where the bombastic Parolles is baited by Helena with a play upon words typical of the period and of Shakespeare:
Helema: Monsieur Parolles you were born under a charitable star.
Parolles: Cinder Mars, 1.
Heleva: 1 especially think, muder Mars.
Parolhfs: Why under Mars?
Heireva: The wars have so kepl you under Hat you must needs be born muder Mars.
Parolles: Wilen he was predominant.
Helens: When he was retrograde, I think rather.
Parolles: Why think you so?
Helena: You go so mud backwad when you fight.
And there is a similar (and perhaps better-known) passage in Twelfth Night, imolving Sir Tohy Beld and Sir Andrew Aguecheck, two titled parasites whose spiriual heirs today would have another drink on the ground that all the had weather we have been hasing is due to the nutear tests:
Sir Tobs:
I did think by the excellent constitution of thy leg it was formed under the star of a salliard [an Elizabethan dance].
Ste Anorew: Abe. 'is strong, and it does indifferent well in a flame-culored stock. Shall we set about some revels?
Sor Tony: What shall we do else? Were we not born under Tanrus?
Sir Andeew: Tamrus? that's sides and heare.
Srr Tory: No, sir, it is legs and thighs.
Of many ather pasages in the Elizahethan playwrighs one of the most striking comes toward the end of Websters grin tragedy The Duchess of Malfa The Machiavellian villain Bosola, who has successfolly organized the strangling of the duchess, her children. and her madservant, overhears the wicked cardinal,


In Shakespeaters king Lerif. Edmund here played by James Booth in the 1963 London
producaion of the play) ridicules beliel
in the miluence of the stars. (The
"astrologica!" instrament he is toyng
with bears no tesemblance to anyiting
Lesed by astulogetsin real life.)
Unlike Edmund. many of Sinakespearés
cilatacters accepi astrology, ofien
allyding to if in genefal comments on
the vaganes of fate.


Fout human types as seen by the 18 th -Cendury Swiss ploysiognomis: Johann Lavater. In the Middle Ages it was believed that indmedual temperament and physique were determined by the "four humors" (or body liquids)blood. phlegm, yellow bite, and black bile. For instance, a melancholic nature was though: 10 result from an excess of blach bile.
his employer. planning to hawe him killed in tum. Bosola, like a good Elizabethan villain, attacks first but stabs the wrong man in the dark:

## Antonio!

The man I would have saved trowe mine owen life!
We are merely the stars tennis-balls, simuti and bandied
Whish way pease them.
Such a ves of astral influence is in the with the stok Elizabethan concept of "blind Fortume" with her whed.

Typical of the carlier part of the 17 th century (iaz lingland the Civil War and Protectorate made a great strange gulf in the middle of it) are such peontiar figures as Sir Thomas Browne and Rober Bunton. The Fomer. who has one feat in the ofd wortd and the other in the new, speaks of astroloyy whon tearly commiting himself. Buton (in his Anatomy of Mefoncholy is also cautions. He uses the famons Latin tas safiens dominabitar asfris 10 make the point that the stars "do imtine, but not compel . . . ; and so gently incline. that a wise man may resist them; sations dommahiar astris: they rute we but God rules them." Fit lumon mainty uses astrolosy to winfore his theny of "humors." in particular of melancholy: "The most generous melancholy . . . comes from the conjunction of Saturn and Jupiter in Libra: he bad. . . from the mecting of Saturn and the Moon in Sorpio." Eisewhere he disensses, with a ypical massive display of latinity, the astrological canses of lowemelanchoty.


In the dagram below each humor findirated by a colon, as in the key, right) is rolated lo is approptate planetary and Zodacal symbols. For example, the meterncholic (blde) is connected winh Mercury (who rulas Gemmi and Virgo): Venus (Taurus and Libra) , and Saturn (Aquarns and Capricom)

phengmanic
Cholefic
metancholic


Burton sems to have been less awate of the new horizons than Browne, but Browne for lis part remained a religious man. The Anglican bishop Jeremy Taylor expressed abou this time what was probably the orthodos position of the youn Church of England: "Let no man let his hopes wander tovard future and far-distant events and accidental contingercies" ; and quored St. James on the folly of men who consult "astrologers and witches, orackes and devils."

## Astrologers of the people

Taylor was 17 years younger than the Erench philosopher Descartes, who in this period was, like Galileo in Italy or Thomas Hobbes in England, exploding long-established preconceptions. But this kind of free thinking would have had litule appeal to ordinary people, who still found it possible to reconcile both their common sense and their faith with a belief in astrology. This is proved by the great popularity of such astrologers as the Englishman William Lilly (160281), who died shortly before Newton published his Principia. Lillys own amobiography is revealing in several respects. He was 30 before he was converted to astrology or saw the prospect of a career in it: when he came to practice, he seems to have been suspect to most groups, even to those to whon the politically adhered. When Cromwell became Protector, one of Lilly's books of predictions "was for a whole week every day in the Parliament House, peeped into by the


Left, a portrait of the astrologer William Lilly. In 1651 Lilly foretold disasters for England, symbolized by his drawing (above) of Gemini falling into flames Gemini is the sign of the city of London, which suffered the Great Fire of 1666 (shown in an engraving of she time. right).

Presborians, one disliking dis semence, another funds another fant, others misliked the whole." In the same yeas. 1653 , a volent attak was published by Thomas Gataker, B.D., "Aganns the Scumions Aspersion of that erand Imposter Mr. William Lillie," of whom he whes: "Ilueve needs mot mach skill in his pretended Are 10 discover the vanity of it."

Two yars later Lilly was in tronble again; he wettes that be was "indicted by a lalf-ibitted goung woman . . . for that I had given judenent upon stolen goods, and received 2s. Gd. And his was sad to be contrary unto an Aet in king Jamess 'Time made." For good measure the young woman added "That she had heen sectal times with me, and that afterwards she could not rest a Nights, but was troubled wihh bears. lions, and tygers eto." There were many other attacks on Lilly: and, though eight years later (in 1663) he was appointed churchwaden of Walton upon Thames, this respectable: position did not save him in October 1660 from being sammoned before a committee investigating the causes of the Great Fire of london. But this urned out to be an advertisment for his art: "Having found, Sir, that the City of London should be sadly afflicted with a great plague. and not long after with ant exotbitan! lire, I framed hase two hieroglyphies. . Which in effer have proved very true." He records that he was dimmissed by the commituce with "great civility."



Above, two pages from an edition printed in $1 \overline{7} 26$ of Isaac Newton's Principía (first publishedin 1687 ) showing a portrail of the author and the tive page. Newton proved inat all physical phenomena, stars and planets imeluded, are subiect to natural-and ramonal-laws, In ihe "Age of Reason." satirists as well as scientists contributed to astrology's disrepute : right, a detail from an 18th-ceniury woodcu: of Jomathan Swif: (hotang a satirical pamphlet) who, under the pseudonym of Isade Bickerstaff, made a laughing stock of the astrologer John Particige.


As a puhfic astoboger, lilly hat antionated many astmbumal joumalists of
 abortives than usually hate foren, He destrations of man matis sons of hat-
 perfoms not what may he experted frosh then," It shond be mened that the Civil War had already hroken ont.



 defensive sperilyine ther surts of people that "soem most of ath oppogen his
 nativites inelude Nert, Henry VIII. Quern Elizabell, James I, Chates I. Luther, Rieheliew. Regiomemtanms, and Pieodella Ahamdesa, And of Lomis XIV (who. unbe the others, was still alive) Gadbory pretioted that, if he survises this year ( 1662 ) whinh involus "dangemes suteming, the Stone, and Trath-
 vived till 1715 and died at hee age of 77.

And so it went on through the 17 tha wemury a whole pack of astologers boasting and backbining, and thes of them. Craty. doing quite well for themselves. Pratilioners of redated "stienes" were alse thrivimg, like the famous

 wribing, so 10 speak, wats on the shy, Just ats the ancient Grectis when they stopped askins "How?" dedined in astronomy and tumed to astrology, so the foth-century french and English when they stopped asking "Why? and conentrated on "How?" were imevtably boun to tum their backs on astrology.

It was Newtun, of cousse, whes dompleted the revolution: from then on (at least till recenty the miverse has heen hought of as machine that works. God could be smaggled in by compmomise or presupposed in the wings of the
 The beaventy bodies on the onfer hand, whld now be seen and musned beher than ever before Recent astronomy had made sense of the solat system and. boh literally and hymatively. put the Eamh in its place: this mademined the astrologers premises, which presupposed the Potemaic system.

Recent astronoms had also proved that dange and irregulatity were not confined to the subheany splece. There was Tychos nova that had fared up. then sanished again: the Moon's surface was full of ups and downs; there were even spots upon the Sun itself. Moreover instad of a compact and symmetrical universe (as Polmatic astronomy and all astrolosy had presupposed), there was now the dangeroms idea of infinite space. In Catholic: Italy, Giordano Buno had heen bunted for suggesing just this in 1600 . Lashy, when Newton explained al! the motons of the heavenly bodies ley four comparatively smple
laws, he explained away the mystery that from the days of ancient Babylon had supplied an incentive, a rationale, and an excuse for astrology.

Newton, by the way, has repeatedly been called by modern astrologers as a witness in their unn defense. This rests entirely on the story that the astronomer Edmund Halley, who gave his name to the famous comet, criticized Newton for accepting astrology and that Newton tarty replied whim: "I have studied the subject, Sir, you have not." But there seems to be no historical evidence for this story. The authoritative Ingrid limd admits: "I do not know if this conversation did in fact take place." And the modern opponent of astrology Robers Eister takes a very definite stand: "It remains an incontrovertible [act that alter the discovery of Kepler's haws and Nemon's principles-in other words, ever since the regular movements of the earth and the planets around the sum have been satisfactorily understood and explained-no professional or amateur astronomer of any repute has ever said another word in defense of astrology."

But the astrologers have gone down fighting, even if this fight has largely consisted in ignoring the overwheming enemy. At the wery end of this eye-opening century, well after Nowton had worked out his theory of gravity, a typical rearguard action occurred in a book called The Angetion Guide, published in 1697. The author, John Case, makes some lascinating assertions, including the statement (quoted in Chapter i) that the creation of the heavenly bodies took place "on Wednesday, April 22, 18 h.p.m. [ 6 p.m.] abom 4002 years before Christ" (italics mine) And Adan (whon Case regards as the first astrologer) "ras created in that pleasant place Paradise, about [itatics mine] the ycar before Christ f002, viz. on April 23, at 12 a clock or Midnight."

Later in the same book Case comes down to the practical uses of astrology". . . te know by this Angedical Lot or Guide what is to come, Good or Bad." Questions a man (or an unborm child?) nay put to an astrologer are answered by consulting differen signs of the Zodiac. Examples follow of the kind of questions asked of each sien :

What shape of body shall I have? Aries)
Whether the thing lost was stolen? (Taurus)
How to know our Brother's Sisters kindred or relations? (Gemini)
'To know when my Grandiather, or my Great-grandfather, or that Old Rogue
my Pather, will die? (Cancer)
Whether I shall get a good Mistress? (Leo)
To know whether I shall ever keep a pack of Good Hounds. or a parcel of good Hogs or Sheep, or ever to be plagued with Rats or Mice? (Virgo)
Will my Wife be a Whore or Honest? (Libra)
If I lend my Money. shall I gain? (Scorpio)
Shall I hawe the Bishopric or Abbey I desire? (Sagittarius)
To know whether I shall ever tome to Honour, or be a Justice of the Peace? (Capricorn)

Winl Fuits of the Earth be cheap or dear? (Aquatins)
Will any Old Woman chater againse me like a Doril? (Pise es)
Some of these questions might sughest hat Case hat his tongue in his chetk, but the fact remans that he had a sucessinf practice.

Most of thrse astrologers must bave been as diftend 10 cartature as, say. advertising men are today. But the sits of the Age of Prose and Reason attempted it. One of the moss famous of these satires was directed at an astrologer named John Partidge, who used his ahmanacs to phy his own projudices (such as anti-popery), to adrance his own political interests, and to becone very rich. In the reign of Queen Anne, Patridge was immortalized in prime by a hose that amounted to a practical joke. The joker was domathan Swilt cwriting under the name of Natac Bicketstiff), who publisted weman "Predictions for the leat lotus." This was swilt's usual satinal technique: to protend to bedieve in the deas le was athacking, and then to canty thom iwith a stanglt facej to etheure extemes So as "Bickerstaff," he first states his belief in the ant of astrology, while he deplores "those grose impostors who set up low be the atists." He is therefore seting out to provide his own reliable predictions to put imposters like Partridge to shame.

Swift goes straiglt to his target: "M? first prediction is but a rifle: yet I will mention it, to show how isperant those sottish pretenders to astrology are in their own concems: It relates to Partride the almanack-maker. I have consulted the star ol his nativity by mon rules; and find he will infallibly die upon the 2ght of March next, aborn eleven at nigh, of a raging fexer: Therelore I adve lim to consider of it, and setule his aflairs in time."

People bought "Bickersaff's" predicions and took him seriously. But they may have taken him less serionsly when he changed his ground, assumed the name of Partridge himself, and wote a larcical attack on "bickerstaffs" prediations. This essay relates what happened on "the 28th of March, ano Dom. 1708 , being the night this sham prophet had so impudenty fixed for my last." "Partidge" complains of a beil being tolled for him, of the monderaker and tien the sexton calling, and many other inconseniences: "I could not stir out of doors for the space of the months after this but presenty one comes up to nee in the street, Mr. Partridge, that coffin yon was last buried in, J have not yet been paid for . . ."

That Partrider really did suffer from this hoax is obvious. We do not know whether he ever lived it down (he phrase in this contex carties more meaning Han ushatl! : he died in 1715 . It sems that he actually tried to adventise in the papers that he was "not only now alive hat was also ative on the 296 of March in question." As for "Bickersaft," he suffered too. His "Predictione" was burned by the Inquisition in Portugal. presumably brause, besides predicting the death of Partridge, it had also pretended 10 predie many unfortumate events on the continem, imeluding the death of Louis XIV. So ands a whole era of astrological theory and pratice, now with a bang but with a coffe-house giggle.

## 6 The loss of respectability

In the 1 Gh century a papal astrologer made a mistake in the date when casting Luthers horoscope retrospectively. In the 18 th century (the "Age of Enlightenment") this incident was seized upon with delight by the English humorist Laurence Sterne in his novel The Life and Opinions of Trisfram Shendy. Sterne envisaged a scene in Strasbourg where the two universities, "the Lutheran and the Popish," wre "emploving the whole depth of their knowledge . . . in determining the poin of Martin Luther's damation."
"The Popisls doctors had undertaken to demonstrate, a priori, that frem the necessary influence of the planets on the twenty-second day of October, 1483 , when the Moon was in the twelfth house. Jupiter, Mars, and Venus in the third; the Sun. Saturn, and Mereury, all got together in the fouth; - that he nuse in course, and mavoidably, be a damned man; and that his doctrines, by a direct corollary mast be damn'd dontrines 200 .
"By inspection into his horoscope, where five planes were in coition all at once whit Scorpio . . in the ninth honse. which the Arabians alloted to religion, -it appeared that Martin Luther did nat care one stiver abont the matter;and that, from the horoscope directed to the conjunction of Mars.-ithey made it plain likewise he must die cursing and blasphensing: with the blast of which his sonl (being steep'd in guilt) sailed before the wind in the lake of Hell-fire." The above horoscope looks pretty odd (one camot see how there were five



The frontispiece to Raphatef Witch or
Oracte of the Future (published in England
in 1831 ) depicting the mystaral wheel of
Pythagoras, whichis used in a method of
numerical divination the decorative
figures nelude a witch (center) and an
astrologer (thotrom le(1) -a syjucal 19 gh
century linking of astrology and occuthism
planets to spare for the ninth house) but presumably was meant to be. Steme was enjoying himself at the expense of a subject that was gradually reaching a stage where it was no longer taken seriously. The late 17 h-century English poet John Dryden was probably the last important English writer (at least till nearly our own day) 10 regard astrology as a serious subject.

Fet Dryden himself also exploited it as a source of rather crude comedy. In a play of his entited An Etening's Love or The Mock Astrologer (the plot and title were borrowed from the French dramatist Corneille) a young Englishman in Madrid pretends to be an astrologer because he has designs on a senorita. Unfortunately the heroines father has studied astrology in his youth and proceeds to test the hero's knowledge by asking him "the best way of rectification for a nativity." The Englishman answers: "Mars rules over the Martial, Jupiter over the Jovial . . .." "This," says the lather indignantly. "every school-boy could have told me." The heros friend then advises him to be better prepared in future: "If at any time thou venturst at particulars, have an evasion ready like Lilly."

Lilly's name is honored again today (and not only by astrologers), but Dryden's successers in the forefront of the Endightemment had very litule respect for him or his kind. A very lean period was beesimning lor the once prond "queen of" the sciences." The modern astrologer Louis de Mohl dates the beginning of the rot from the 1 Gth century with its wars of religion from which "revolution was born and with it that tervible time of gross rationalism" (whith, he apparently hopes, is now drawing near its end). But it was in the 18 th century that this rationalism became truly free-or gross. Throughout the 1 foth and much of the foh century (as we saw in Chapter 5) it was sill hampered and complicated by old modes of thought and a residue of superstition.

In England the Royal Society fhich was the spearlied of what has been called the "scientific revolution") had been founded in 1662: and yet, on the appeatance of the great comet of 1680 . we find an educated man like the diarist Joim Evelyn writing of comets: "They may be warnings from God." In Gemany, on the same occasion, we fund professors and Lutheran ministers seressing the length of the comet's tail and regarding it as a rod of chastisement that God has put in his window-"and all the childen lear. but he has in mind only the mischevous," Erhard Weigel, a profestor of mathentatios whose astrological views admitudy were eccentric, interpreted the vanishing of this comet when about to enter the Milky Wiay as a waming 10 patents to feed their chibdren on the milk of true piety. And on the same occasion great attention was paid by serions Gemons to the report that at hen in Rome had laid a cometmatked egs; engravings of this hen and her egg were circulated throngh the ommery. Many Geman pamphere and theses were published about this comet; very [em of them were skeptical.

In Anerica the purianical prathey Increase Mather grabled at the 1680 conet as the exouse for a hell-fire semmon "Heaven's Alam to the World."


## 22sinmarsin.



 (20tuly

Above a diagram based on the calculations niace in 1682 by the English astronomer Edmund Halley, who proved that comets revolve in lone elliptical orbits around ilie Sun (the dot at the center et the planetary orbits) Comets had alwavs leen regarded as omens of disaster: Topright, कdetal from the 11th-cantury Baveux Tapesiryrecards King Herold's dismay when a comet appeared in 1066 : center tight, a German pamphiet of $i 680$ depicts comet-markedegg that was allegedly laid when the comet reappeared that year This irrational aititude to comets lasted after Hatley: It was mocked by an Americancartoon of 1910 (right) showing people digging holes in New York's Central Park to escape a comet's "fallout."



In Holland and Fanme the rations were kess old-fationed. In the formere the simpler flocks of Calvinist were senerally as suscepaiber as that of Incease Mather, though most of the Dutch elite were commotrans of the comer as a portent (and of astology in generad. In france the fhiturepther went imo action. encouraged by Loulis XIV. The fanons ketw-wtime Madame de Sévigné was lightheartedty skeptical. The Promestan profesen of philosophy Pirme Bato delivered a violent athath on the "scimer" in his Penses diverses-at athack inspired by the comet and the the fact. as la admitted, that France was overrum by astrologers. He seems to have susperted like mamy astmomers of the the that comets migh be periodic: this hypothesis. which mould knek the bottom our of cometary superstition, was proved rormed when Halles's romet pesumed at the end of 1758, as predirted be the followers of Newtom. Bayle's book was widely corculated. His equally famons colleague Fomendle chose the favorite French weapon of mockery. He had a conedy staged in Paris, antited simply Le Cometr (see Clapmo al. And in the next penemation Tohaire dismiserd astrology with contempt in his Dictionnaite Phidosnphitate.

As the 18 h conturys emphasis on teason tonk firme hold. Emopean asmogy began to lose the grome that it had ganed and hedd dering L.ills's time and hefore. England offers a frw isoliand exanples of astrological witing: For instance an unorthodox book called Asho-Thrology by William Derham (who was both a elempman and a bellow of the Royal Socievt ran thengh nime editions betwere 1715 and 1750; bu this was realy more a work of imagimative astronomy than astrology. And a qualified surgeom, Elumater Sibly, who described himself as an "astro-plitosopher." wront a cast book , mithen The Cotestial Science of Astology. It contained many mativites, induding these of Christ and George III, and was ilhustated with curious copperplates inchoding a symbolic represemation of the American Revolution.

One of the few estrological works that appeared duting the 18th-Gentury "Age of Reason" was The Cetesral Science of Astrologh (published in England in 17901 by the sell-siyled "astro-plitosopher" Ebenezer Sibly. Lett, one of the book'siluserawons symbolizes the Amencan Revolumon The angel in the clouds holds a horoscope cast for the Declaration of Independence in 1776 . Rigit, also irom the book, a portrait ot the aulhor (withan his own horosenpe)


Sibly began his book by admitting that he was aware "of the rotted prejudices of the tines against the venerable science of Astrology." These prejudices were probably still intact in 1828 when John Varley published his Treatise on रodiacal Phastognomy, which has ofen been quoted from in earlier chapters. In France, at the end of the century, it was clamed that the revolution had been foretold by Nostradamits in 1555 ; but the trend of post-revolution France iself was right away from such a "conservative" actionty as astrology. In the next hundred years there is far less record of its practice in France and the rest of continental Europe than in England.

In Germany, Goethe is sometimes claimed as an adherent by modern asmologers, but the cevidence is not strong. It is the that he starts his autobiography (translation by Johm Oxenford): "On the 28h of August, 1/49, at mid-day, as the clock struck twelve, I came into the world, at Frankfort-on-the-Maine. My horoscope was propitious. . . "He then gives the details. That he should have bothered to do this does not necessarily prove that he believed in horoscopes; he was a man of vast cmriosity who was interested in the stiences of the past as well as those of the present-and futhre. He did not believe in either nagic or Christianity, though both are essemtial to his story of Fanst.

Of comse, astrology did not entirely die ont in this period. But so find it beims practiced and respected whth anthine like the style it enjoyed in its Enropean beyday one has to look ouside Europe. The Abbe Dubois, a mesionary in India toward the end of the 183 h century wote disapprovingly of the Brahmin purnhitas: "There is no one in high position who has not one or more official purdhatas living in the patace: and these men act, so to speat, like ralers of the maverse. They go every moming and whh ludicous gravity anomene to the prince, to his state elophant, and on his idols. each in their turn. atl that is writen in the almanac relating to that particular day."

In 1800 a travelor in Persia, James Morier, wats not allowed to leave Basra before the hour decidud upon by He astrobogets and was also warned to time his amal at the next plate as exanly as posible. The Dostem govenor of Basa told Morier that once, when he bas aloun to embark for Catentas he "was ordered ley these astrologet fas the only means of commeracting the inflecme of at certain evil star) to go out of his house in a paticular aspect: as unformately there happened to tee no door in that diretion, he cansed a hole to be mate in the wall, and thas made his exil." Poople often used to saty that the East was whehangins: It was mentoned in Chaper I that Mareo Polo had deseribed central Asian functals five centure hefore Morier in which a hole would be broken in the wall so that the ropse miefle be carried out in the direction ardered by the astologers.

A British Epyptologist, E. W. Lame. whowen to live in Fgype in 1825, wrote: "It was a custom very common in Egyph. as in other Muslim countries, 10 consult an astoboge provonsty be giving a name to a child. and to be guided by his choice ; hut." he adds rather suppringly, "wery few persons now conform


Geomancy is a complicated formol divinauon (closely connected with astrology) from rows of marks in the sand. which were somellmes interpreted mechanically. This medeval Arab gegmancy machne was operated by knobs. some representing astrology's 12 houses.
with this old usage." He does stress, however. that astrology was more studied there than astronomy: "To say that the earth revolves round the Sun, they consider absolute heresy." Aso, though his Egyptians may have become careless about giving a child a name, whatever name it receised remained numerologic-ally-and therefore astrologically-important. Lane explains that their astrology was "chicfly employed in casting nativites. and in detemining fortmate periods, etc. ; and very commonly, to divine by what sign of the Zodiac at person is influenced; which is usually done by a catculation founded upon the numerical value of the letters composing his or her name, and that of the mother . . ." He adds that the Egyptian band of geomancy (divination by marks mate in the sand, which is still performed for unrisis) is "mainly founded on astrology."

F'or most of the 19th century, thanks largely to the success of the "scientific revolution," astrology's disrepute in Europe continued. at least anong educated people. Thus Sir Water Scou had originally intended his second Wavertey novel. Guy Monnering, to have an astrological motivation and famework. He had got the idea from at story fold by an old servant of his tathe's: A child is due to be bom in a great house when a stranger drops in, whe haperns to be an astrologer. He sudies the heasens and bess his host "to relard the hirth if practicable, were it but for fiee minutes" ; but, alas, it is not practicable, so the astologer wams the father that a remible crisis will come to his newly
born son about his 21st birthday. When the birthday approaches, the father sends the son to the astrologer, in whose house, as it befalls, he has to face the Devil and fight for his soul and his life.

The more Scott pondered this plot the more he began to suspect that what was good enough for his father's servant was not good enough for the readers of Waverley. As he explained himself: "It appeared, on mature consideration, that Astrology, though its influence was once received and admitted by Bacon himself [he means Francis Bacon, not Roger], does not now retain influence over the general mind sufficient even to constitute the mainspring of a romance."

Scott wrote this in 1829. Five years carlier in England the Vagrancy Act had backed up the Witcheraft Act of 1736 in outlawing the astrologers. Astrology's reputation had now reached one of the lowest points in its history, and it was becoming more and more diluted by association with the occult and those other irrational practices that always seem to flourish (as a kind of underground counterpoint) in societies that lay heavy stress on the rational side of human nature. This process was especially obvious on the continent of Europe: For instance, in France about the middle of the century, a man calling himself Eliphas Lévi (real name: Alphonse Louis Constant) gained a measure of fame by pepping up astrology with the occult. In fact, Lévi (who believed in a universal medium called the "Astral Light") seems to have been an occultist first and an astrologer second (a combination that was to become more common as the century progressed). In his Hestory of Magic Lévi quotes from an older authority (whom he refers to only as Ballanche): "Astrology is a synthesis because the Tree of Life is a single tree and because its branches-spread through heaven and bearing flowers of stars-are in correspondence with its roots, which are hidden in earth."

Lévi and his successors in France worked hard to introduce the cabalistic science of numbers into astrology, and the resulting mixture soon made its way from the continent to Britain, where later astrologers were to apply it to horse racing and the stock exchange. The first Zadkiel himself, in his Handtook of Astrology (1861), provided fodder for gamblers when he wrote self-righteously of horse racing : "I would not encourage anyone in the pursuit of this pernicious, foolish, and discreditable practice, for the sake of mammon: but if anyone be already engaged therein, and be really anxious about the result"-why, then Zadkiel's book can help him a lot. "If the ninth [the house of honor for the horse] be strong, and the lord of the twelfth be there and not afficted, then the horse will gain honour by the race and be well placed therein."

Zadkiel (Richard James Morrison) was a typically English figure. Born in 1795, he resigned from the Royal Navy in 1829 and devoted the rest of his life to astrologizing and inventing. His inventions included a bell buoy and a plan for "propelling ships of war in a calm." In 1831 he published The Herald of Astrology and followed it with numerous publications including, in particular, the famous annual almanac.

The almanac sold about 60.000 copies amually. The firs Zadkiel the almanac was later continued hy others, who also used the pseudonym "\%adkiel") chamed that he bad been making correct and unchallenged predictions for over three decades. According to himself this was not only a trade but a crusade: He was devoted to the task of "re-establishing the doctrines of Astrology in the public mind, after being obscured for a season by the spread of infadelity in religion" (italies mine). And in Zadhiel's legecy (1842) he brings a high, prophetic tone of soice to his preface: "Many gencrations shall pass by. many centuries roll away, and this book shall still remain a memento of the sublime powers of astral influence." Like some other modem astrologers, the first Zadkiel also went in for crystal gazing; in 1863 he was described loy an indignant rationalist admiral in a letter to the press as "the crystal globe seer who gulled many of our nobility:" Zadkiel brought an action against the admiral and was awarded 20 shillings damages and no costs.

Zadkiel did not go out of his way to gloss things over for his public. He was more ruthless than many of his successors in detailing the characteristics of certain signs. He writes of Cancer, for instance: "if a femate, prolific, dull, and timid." And of Seorpio: "ill-made leet or bow-legged . . . generally deceitul."

Anillustration from The History of Magic (1855) by the French occultist Elphas Lèvi The branches of the "tree of life" contan the seven wonders of the world. which are linked with the seven planest of traditonal astrology (indicared by their symbols) and seven metals For exampte, the Maon is related to the Temple of Diana (the Roman Moongoddess) at Ephesus. and to silver


Possibly those of his Victorian public who were dull, deceitful, etc., preferred to be told that the fault was in their stars.

But in spite of Zadkiel's Jame, his pronouncements did not go unchallenged. A Complete Refutation of Astrology by T. H. Moody, a professor of mathematics, was published in Britain in 1838 by subscription ; the subseribers included clergymen, generals, and schoolmistresses. "During the last twenty years," complains Moody, "seseral new astrological works have appeared, and the high tone of confidence adopted in some of them is trily remarkable." Moody quotes an interesting historical argument from Zadkiel: "We are quite certain that the prejudice against astrology owes its origin chiefty to the cant and hypocrisy of the Puritans in the time of Crommell." "This is a fine specimen of astrological certainty," says Moody. (But he omits one possible answer: Why, then, did not Charles II, at the Restoration, restore astrology too?) He also sets out to pick holes in some of Zadkiel's horosopes and in some of the details of his almanacs. When Zadkiel writes of a certain Sunday: "This day is evil till after one oclock, when you may write letters, commence short journeys, and ask fasours," his mathematical opponent makes a sabbatarian choice of weapon: "But God has blessed every Sabbath in the year, and commanded us to rest from all mere worldly occupations."

Moody complained of the "high tone of confidence" employed by the new astrologers. Just as confident as the first Zadkiel was the first "Raphael" (R. C. Smith). Whike Lieutemant Morrison was still in the Navy, Raphael had published his Manmal of Astrology. And in the year that Zadkiel published his Herald. Raphat! came out with his H"itch, with its strange illustrations like "The Mystical Wheed of Pythagoras" or "The Cabalistical Tablet of the Stars." Typically of its period, this book aspires to be simulancously awesome and genteel,


Aside from handbooks of the occult, 19 hhcentury astrologers produced a spate of almanacs. Typical examples were the rwo founded by Eritain's Zadkiel and Raphael. Left, the title page of one of Zadkiel's many astrological publications. Right irom Raphael's Almanac of 1824, ahieroglyph (a skeleton on the French throne) that wes tater claimed as a prediction of the death of Louis XVIII. Far right, a drawing from the 1963 edition of the same almanac, which correctly foretold a high proportion of Irish winners in English horse races that year.


Above, the title page and irontispiece from a "complete system of ocrult philosophy" published in 1825 The book ancludes inlormation on summoning the dead, nagic tälusmans, prophecy-and astrology.

and is described by its author as "adapted to lay about in drawing rooms- to be read in gardens and groves-to omament a boudoir." (All the italics are his.)

These were the sort of people Moody was up against. But it is to be doubted if he converted many of those who had Raphael's Witch lying about in their drawing rooms, or any less genteel readers who were ready to lap up the astrological almanacs. Moody uses boil scientific and mathenatical arguments (he makes play with the precession of the equinoxes as Robert Eisler did; see page 74) and the common-sense appeal to experience (against mundane astrology he gives historical instances of predictions of floods and storms that never happened). But his voice is not the voice of the Enlightenment. One doubts if he would have felt at home with Voltaire or Swift or Hume. In England at least, a new era was beginning; Queen Victoria had ascended the throne a year before Moody's Refutation was published. Moody's main approach both reminds us of the early Clnistian Fathers and anticipates orthodox Victorian Christianity: "Astronomy," he writes, "connects the mind with heaven; but astrology associates it with the daemons of darkness."

One instance of astrological quackery quoted by Moody takes us into the streets and the minds of ordinary people. A certain Charles Paddon had put up the following advertisement (no doubt it was one of hundreds): "The Astrologer of the Ninetcenth Century; 32, Grafton Strect. Tottenham Court Road. By knowing the time of birth, we are enabled to read in the heavens the story of our whole lives. N.B.-All letters must be post paid. Please to ring the first floor bell." In January 1836, a woman who was a policeman's wife rang the first floor bell and was introduced to Paddon, an impressive gentleman "in a large dressing gown, seated in an immense amm chair," who promptly predicted that her husband, the peliceman, would die in the near future. For this she paid him a fee of two shillings and sixpence. As she left the house her busband was waiting outside: he entered and arrested Paddon, presumably on a charge of obtaining money by false pretenses. Moody says that Paddon "appeared almost planet struck and exclaimed 'I am ruined!'" (In Britain, astrologers and fortune tellers had been classed among "rogues and vagabonds" by the two Acts mentioned before. Their legal position remains unaltered today.)

## The new planets

Meanwhile, the usurping astronomers continued their ruthless discoveries. The telescope had long since opened up those infinite spaces that hormified Pascal and put paid to the old tidy Aristotelian (or Ptolemaic) universe. From then on the world was to see bigger and bigger telescopes and many more startling advances in the science, the most upsetting for the astrologers being the discovery of the new planets Uranus and Neptune. Some astrologers, admittedly, made these an excuse for the inaccuracies of their predecessors; but others, who wanted to keep the old septizonium (the elegant, time-honored, and mystical set-up of seven planetary spheres), argued that these new planets could not influence
human beings because they could not be seen with the naked eye (an argumen that presumed a very narrow and dubious interpretation of the nature of planetary influencel.

Uranus, which lies vastly farther out in the solar system than Saturn, was discovered in 1781 by William Herschel. As a gesture to his patron, George Ill of England, Herschel attempted to call the new planet "Georgium Sidus" (the Georgian Star), while his friends wanted to call it "Herschel." Foreign astronomers prevailed over both and the new planet eventually fell into line with the old ones under the classical name of Uranns. Some to years later Uranus was noticed to be behaving strangely (the French astronomer Pierre de Laplace spoke of "some extrancous and unknown influence that has acted upon the planet") and for the mext 20 years astronomers in several countries investigated the possibility that there might be yet another unknown planet pulling Lianus out of course.

Finally, in 1846 , J. G. Galle, an astronomer in Berlin, prompted by a French collcague, Urbain Leverrier, managed to put his finger (in fact his telescope's refractor) on the very distant planet that was given the mame of Neptune. It should be noted that, though these planets were named in an arbitrary manner (see Chapter 2), astrologers ascribed to them influences that seem derived from these names. The same process was repeated when Pluto was discovered in 1930.
"Three new forces to consider should make a great deal of difference," wrote Rupert Gleadow in Astrology in Everyday Life (published 1940). "They do," he went on, carrying the war to the enemy, "but it is worih obsersing that they correspond chiefly to things that have been invented since they were discovered; Uranus, for example, is comected with machinery, and the industrial revolution happened shortly after he was found." In a chapter on the "Aquarian Age" (see Chapter 3) Gleadow attempted to explain contemporary history by picturing it as a conflict between "the old ruler of Aquarius"-Saturn, who represents control, restriction, and slavery-and its new ruler Uranus, who represents "culture, civilization, intelligence," etc. Incidentally, hough Gleadow saw Uranus primarily as a good planet, the first Raphael had predicted that "the influence to be expected from this newly discovered star would be eminently exil," its effects being "truly malefic."

Gleadow's description of this conflict, though he may have been mercly speaking symbolically, sounds startingly anthropornorphic: "Saturn does not want to give up his rulership over Aquarius. Uranus began the work of overthrowing him at the end of the eighteenth century. But then in 1846 Neptume was discovered, and Neptune was an ally for Saturn, since his sign Pisces [the influence of the name again?] is in sextile [a good aspect] to Saturn's sign Capricom . . . " Neptune, he explains, "stands for the absorption of the self into something great and wonderful" and so can be held responsible for the growth of modern dictatorships. But we need not despair since Pluto was discovered in 1930 and "Pluto appears to rule Aries [though Ingrid Lind connects it with Scorpio], which

## The new planets

William Herschel 1738-1822


Urbain Leverries 1811-77


Percival Lowell 1855-1916


Astrologys traditional seven-planet system was badly shaken when Uranus was discovered in 1781 by the English astronomer William Herschel (far left). Left, the reflector telescope with which he is said to have made the discovery. Gear wheels (rugh) illustrate astrology's view of Uranus as the patron of machinery. This planer was also declaped to be the rulet of Aquatius. here shown with Urenus's symbol

## H


is in sextile to Aquarius and in square [bad relationship] to Capricorn; Pluto is therefore an ally for Cranus and an enemy of Saturn."

This sort of astral battle is complicated by the fact that the opponents can sometimes borrow from each other's armory. Thus, though Uranus is the patron of machines, Gleadow tells us that Pluto in Gemini (which is an airy sign and the sign of transport) produced the airplane. But on the whole modern astrologers employ a certain caution when dealing with the three outer planets. Ingrid Lind explains that, because they take so long to pass through any particular sign of the Zodiac, they are not so relevant to individual horoscopes (this is a let-out for previous horoscopists) but rather must be regarded as "affecting a generation, or as providing background conditions for a period."

Similarly, the American astrologer Grant Lewi (who writes under the name of "Scorpio") attaches historical importance to Urams being in square (bad relationship) with Neptune: "This position, because of the slow motion of the two planets involved, lasts for many years at a time and consequently influences many people. It is the aspect of the so-called 'younger generation' that ran rampant right after the [first] World War, overturning law, and order, and especially personal morality."

Turning from these debatable planets back to the late 19 th century in general: About this time astrological writers began to make very free with tradition, mixing in (to taste) every kind of symbolical significance, especially if it could be drawn from the Bible. This tendency was to develop further toward the end of the century. In 1862 Frances Rolleston published her book Mazaroth (which was mentioned in Chapter 3) in which she not only makes the claim that the astral names and emblens "express the promises and prophecies revealed to Adam, Seth, and Enoch" but commits hersclf to many fairly exact equations between the Scriptures and the stars. For the Book of Revelation, she finds that its chief revelations are Zodiacal: Thus the 12 precious stones of the Holy City inevitably correspond to the 12 Zodiacal constellations.

A quarter of a century later another lady, Rosa Baughan (women from now on were to take much more part in this once almost entirely masculine mystery), combined astrology with chiromancy. She apportions each finger to a planet and does the same with the lines on the face. Apart from assigning the nose to Mercury, she assigns six lines between the hair and the cyes to the six other planets; in each case, if the line is broken, it indicates something unfortunate. And she explains that Satum gives you black moles, whether on face or body, and Jupiter purple-brown ones. The appeal of all this detail presumably lay in that age-old principle of correspondences or "sympathy." She herself describes her writings as "Old World lore": "Macrocosm and microcosm must be no longer divorced." She also retains the ancient doctrine of the four humors.

In the U.S.A. about the same time (1892) a curious book was published in Boston called Astrology of the Old Testament. Its author, Karl Anderson (who belongs to the same category as Frances Rolleston), described himself as Professor


The 19th-century astrologer Rosa Baughan's version of the wheel of Fyithaggras-a method of prediction by numbers that answers questions with "yes" or "no." Here is how it works: A questioner named, say, Tom shuts his eyes and picks a number-say. 9-from the table (right). To this he adds the number that on the wheel, is opposite his initial T. which is 6, making 15 . Next he takes iwo numbers from the list (right): One for the day ol the week-say. Thursday, which is 39 -and one for Thursdays ruling planel. Jupiter, which is 78 . He adds 31 and 7810 15 making 124. which he then must divide by 30 . leaving the remainder 4 , It the remainder is among the numbers written in the fower half of the inner wheel, the answer is "no." If it is one of the numbers in the upper half, the answer is "yes." The answer san be further qualified by the position of the number either on the left side or the right side, which indicate a "long time" and a "short time" respectively. Since Tom's number. 4. is on the upper left side. the answer to his question is "yes, in a long time."

| 1 | 11 | 22 | 28 | 29 |
| :---: | :---: | :---: | :---: | :---: |
| 6 | 2 | 12 | 23 | 30 |
| 15 | 7 | 3 | 13 | 24 |
| 19 | 16 | 8 | 4 | 14 |
| 25 | 20 | 17 | 9 | 5 |
| 27 | 26 | 21 | 18 | 10 |

Sarlurday 45
Sunday 106
Monday 52
Tuesday 52
Wednesday 102
Thursday 31
Friday 68

Saturn 55
Sun 34
Moon 45
Mars 39
Mercury 114
Jupiter 78
Venus 45
of Chaldean, Arabian, and Egyptian Astrology. He also likes a rich, complicated recipe and flavors the soup with the Free Masons, the Great Pyramid, and some odd etymology : The word "angel," he says, is a corruption of the astrological term "angle." This book, like Mazarolh, presupposes a fundamentalist cosmology. But this time the signs of the Zodiac are linked with the 12 tribes of Israel; for example, Taurus with Ephraim and Leo with the Old Testanent's "Lion of Judalı." And, though Anderson much prefers the Old Testament to the New. he can also explain whatever is valid in the latter: Thus he asserts that when Christ "stooped and wrote upon the ground" he was casting a horoscope or horary question.

These 1 th-century writers have been quoted not for their intrinsic merit but because their oddity is a historical phenomenon. As the century wore on, there was in certain circles (in Britain and America especially) a swing away from the rationalist concept of a mechanical universe and a renewed hunger for the irrational. In 1875 the Theosephical Soriety (with an American. Colonel Olcott, as its president) was founded in the United States by that supercharged eccentric, Madame Blavalsky. This extraordinary woman, whose "lamasery" (i.e., sitting room) was crowded with stuffed snakes and monkeys, specialized in producing psychic phenomena. She always attributed her powers not to herself but to her invisible Himalayan "Masters" (the "White Brotherhood"), chief among whom was "Koot Hoomi." "Somenne who knows all." she said, "dictates to me."


Reperated attempts were made to diseredit her as a charlatan, but at the time of her death in 1892 she numbered over 1001000 followers.

Soon afer Theosophy was founded, it recruted a now leader in the equably dymamis but more socially conscions and mone intellectual Mrs. Amme Besant. The movement had by this time beome linked with India and therefore conde not remain untoughed by astrology: Indian astrology monained ements that, though suspect to the more imelligent astrologers whether of the Renaissance or the 20h contury, had a natural appeal to many theosuphists (wha preferred their miverse to be mestically semationali. Their obsession with a mestical "divine nature" would encoutge the arcepance of the early more hermatic vew of the stars as divine creatures-and perish the thonght that they migh be mere "signs." not "causes."

In 1885 there uas pablished in Madras an English transation by N. Chidambatam Ayar of an alleged astrological classic, the Brihat fotata. The translator explains in his introdnction: "The diffoulty in conceiveng active agency as possessed by the planets when viewed in the light of huge inert balls, will be removed when we suppose that ach plane poserses a soul." Not only do they possess sonls: They are "rewarding and chastising officers." And that is where we come in, or mather where we never got out. For, according to this Hindu texthook, "the science [of horosopy] treats of the effects of the good and bad deeds (kama) of men in their previous birth."

[^5]

This involvement of astrology with the doctrine of reincamation, which would ipso facto be unacceptable to any Christian astrologer, would have caused no difficulty to most of the theosophists, who were only too conscious of their "karma." In her often reprinted book The Sectet Docirine, Madame Blavatsky, who looked like a gypsy, indulges in what appears to be sypsy-like mystification. Most of her doctrine is highly esoteric and some of the astrological portions would be repugnant to orthodox astrologers. For instance, she has an original view of the Moon, whom she seems to consider primarily evil: "Constantly vampirised by her child [i.e., the earth], she revenges herself on it by soaking it through and through with the nefarious, intisible, and poisoned influence which emanates from the occult side of her nature."

As a double-dyed or multiple-dyed universalizer, Madame Blavatsky will have none of the fixed and specific notations of orthodow Western astrology: "Why see in the Pisces a direet reference to Christ-one of the several worldreformers, a Saviour but for his direct followers, but only a great and glorious Initiate for all the rest-when that constellation shines as a symbol of all the past, present, and 「uture Spiritual Saviours who dispense light and dispel mental darkness?"

Annie Besant was much less extravagan. Though she once wrote of "chis ancient and much maligned science," she admitted that she had litte knowledge of astrology and in ler Athohograhhy makes only moderate. and comparatively conventional, clams for in: "Keeping in view the way in which sun, moon, and planets influence the physical condition of the canth, there is nothing incongruous with the orderly view of nature in the view that they also influence the plysical bodies of nen. . . . At the most, astrology, as it is now practised, can only calculate the interaction between these physical condinions at any given moment, and the conditions lwought to them by a given person whose general constitution and natal conditions are known. It cannot say what the person will do, nor what will happen to him . . . " (italics mine).

Note that in her first sentence Mrs. Besant omits the fixed stars (including the Zodiacal signsi, which no one, she says, has ever proved can "influence the physical condition of the earth." And in her second sentence (like a few 20thcentury astrologers but unlike the vast majority of their predecessors, who said all they needed was the natal chart she states that an advance knowledge is required of the "general constitution" of the "given person."

## Some popular astrologers

So much for the wo great theosophical Amazons. As an example of a theosophist of the time who was also a professional (and highly successful) astrologer. we may take Aan Lea, the son ol a soldier in a Sootish regiment. Leo believed he had lived before and aloo believed, as we saw in Chapter 1, that "every homan being belones to a Father Star in Heaven or Star Angel as did Jesus Christ according to our Scripture." (Most carlier astrologers had denied that

Christ was infuenced by the Star of Bethlehem.) Lea added: "And I am convinced that every man derives his will power fron a Planetary Splere of Inftuences which he uses, or abuses, by which we can overome evil tendences, and control his animal nature, hence Astrology touctues that Ghatacter is Destiny, also [the old cliche] that the Wise men rules his Stars while the fool oheys them."

Leo began his astrological work in the 1880 s and soon made friends, or enemies, of other astrologers who gave demselves names like Aphorel, Charubel, Casael. and Sepharial. Together with Aplorel (F. W. Lacty) he lamehed The Astrologer's Magazine. The first mumber included three horoscopes: those of Jesus Christ, of the then Prince of Wales (Edward VII), and of Stanley, the expiorer of Africa.

Leo and Aphome encomtered some antagonism from the editor of Sadkifls Ahmanat: whose system they did not accept. (The Jacobean sitnation of quarreling withint the fraternity setms to have come around again.) But their paper sursived and in 1895 was renamed Jfodern Asfology. 'They were thus pioneers of the presem era of astrological jommalism. Leo. who sperialized in Lramus (which was very strong in his own hornocopel, was an odd person, as was his wife Bessie, who cond not atree to any marriage that was not platonic. Bessie received her first lessons in astrology from Leo on the sands of Boumemouth, on which he drew the signs and the planets for her. Later, finding that his Moon and her Sun were in the same degree of Aries, they decided to get married - platonically. Leo agreed heathse "I have a work to do for the world for which celibacy is

Mis. Annie Besant. who succeeded Madame Blavatsky as president of the Theosaphical Sociely. Mrs Besami'sviews on astrology were less extreme than hose of her predecessor : While ascribing some influence to the planets, she denied that astrology alone coula provide a true picture of an individual's future.



Britain's Alan Leo (1860.1917)-astrolager,
theosophist, and co-leunder of Modern
Astrology-depicted in his own horoscope.
essential." Leo died in 1917, after which people began writing to his widow to tell her that he was still teaching them astrology and theosophy "on the astral plane." It seems likely that these people's receptivity was enhanced by their world-war experiences.

But back in the period when Leo was beginning his crusade, a very different type of Englishman lent his weight to the astrological cause by admitting to a qualified belief in the subject. Richard Garnett (1835-1906), Keeper of Printed Books at the British Museum, came of a distinguished family and was not only a well-known author but also a brilliant lingust. And so he can be said to have been one of the first persons in Europe of high intellectual caliber to have taken a serious interest in astrology since the 17 th century. Though he himself claimed that his reasoning on the subject was "wholly empirical," he seens to have had a naturally mystical bent that, in reaction against 19 h -century materialism and a purely mechanistic cosmoloys, led him to plump for astral influences. His empinicism consisted in collecting evidence from the horoscopes, for example, of well-known madmen like George III, on the strength of which he claimed to have established "a prima facie case." No astrologer at that time had based his deferse upon statistics (hough modern statisticians would not allow that Garnett had considered nearly enough instances).

Garnett was wary of astrology's "pretension to foretell the fimes of events." What he did attribute to it was the explanation of certain aspects of human
character-and therefore the power to estimate the likelihood of an individual's behavior. His physics (he assumes the astral influences are transmitted through an "all-pervading aether") would be suspect to modern physicists and astronnmers; but his motivation, of course, was not so much scientific as religious. What seems to have appealed to him in astrology is what had appealed to so many before him-the "marvellous harmony" it implies in the universe.

While Richard Garnett was still Keeper of Books in the Museum, another intellectual of vastly greater originality was probing around the fringes of astrology under the influence of a crank. The great man was Sigmund Freud; his mentor was Dr. Wilhelna Fliess, a nose-and-throat specialist with a passion for numerology. Fliess, who within his own field tried to connect the nose with menstruation, was determined to discover a similar periodicity in all the spheres of human and animal life. He was especially ohsessed by the numbers 28 (for a woman) and 23 (for a man). Starting with the Moon, which is traditionally linked with nenstruation, Fliess seems (in the words of Freud's biographer Emest Jones) to have been looking for "a deeper connection between astronomical movements and the creation of living organisms. From the nose to the stars, as with Cyrano de Bergerac!"

Fliess's puzzling influence over Freud ceased about the turn of the century and no recognition of numerology, astrology, or related subjects entered the canon of orthodox Freudian psychoanalysis. (Later, as we shall see in Chapter 7 , Freud's pupil and rival, C. G. Jung, who looked for something in everything, made an "astrological experiment" in an attempt to relate astrology to his psychological principles.) But, whether or not any professional psychologist has accepted astrology wholly or in part, modern astrologers have attempted to assimilate modern psychology. The ingenious French astrologer André Barbault studied Freud's own horoscope (in which Scorpio was in the ascendant and the Sum, Mercury, Liranus, and Pluso all in Taurus) and comments: "The psychological universe that Freud discovered is that of Taurus (associated with Scorpio)." In a passage quoted in Chapter 3, Barbault sees Taurus as "the meatsafe of the Zodiac . . and ultimately, hrough displacement of the oral tendency, the strong-box of the Zodiac." And he continues: "The discovery of the oral libido (Taurus) was completed by that of the anal and general libido that one nuets precisely in Scorpio, Freud's second dominating sign."

In the intervening half-century, which included two world wars, a new school of psychological astrology was to appear in Gemany, and K. E. Krafft from Swizerland (see Chapter 7) was to develop what he called "astro-biology," white in the English-speaking countries traditional astrology was to Hourish in its more popular, and certainly less trustworthy, forms in the annual almanac and the Sunday newspaper. Just before World War I Zadkiel's Almanac, now edited by A. J. Pearce, was selling more than 200,000 copies per year.

A typical figure in England was Walter Gorn Old, who called himself "Sepharial" and who, apart from orthodox astrology, went in for fortune telling
with cards, crystal gazing, and numerology. Just before World War I he published a "Guide to Speculators" called The Silver Key. This book offers an analysis of planetary influence on the turl, partly by names (which are reduced to numbers and then equated with the planets) and partly by colors. He explains that the horoscope for the last Lincoln Handicap race showed "Uranus in the fifth division of the heavens, which is held to rule speculative concerns. This planet indicates grey, or black and white hoops with stripes." The Lincoln Handicap was won by a horse named "Kaffir Chief," whose jockey wore black and white hoops.

In a handicap race, morcover, according to Sepharial, there are also the weights to be considered: You must find out what the Moon's position corresponds with at the time of the race "for inasmuch as the Moon is a proved weight-lifter, we may naturally expect that gravity will be the more readily overcome in that instance, and that the performance of the animal carrying that weight will be proportionately good."

Such were the preoccupations of popular astrologers and their public in 1913. But Sepharial himself, like most of his colleagues, was able to adjust with no trouble to what happened next. In The Great Deastation \{the foreword is dated October 1914) he bases his presiew of the war on a cyclic view of history: "History repeats itself. Substituting Germany for Persia, and France for Greece, you will find the whole history of the war in the eleventh chapter of Daniel." His prose in this booklet has a purple and sometimes semi-biblical quality and the general tone is optimistic: "We are about to enter upen the Aquarian Age wherein Humanity will be its or'n Dictator, when the public conscience shall be a law unto itself, and the service of Goodwill shall become the sweet slavery of the Soul." In the same year he predicted "a tremendous social upheaval" in Russia; but if he meant the Revolution, he dated it at least a year too early.

In 1915 Sepharial published another booklet: Why the War Wrill End in 1917. (This was sold for a penny by the same publisher who put out, also for a penny, a booklet entited The Angel Warriors of Mons, in which it was argued that this legendary apparition of angels who fought on the Allied side was supported by good evidence.) Sepharial here stresses the sinister horoscope of Kaiser William, whose Moon was "in direct opposition to Uramus, the planet of disruption," and whose mid-heaven was ominously occupied by the malefic planets Mars and Neptune.

Sepharial foretold a German surrender in August 1917. In a section called "The Readjustment" he foreses an "Aquarian Age of a liberated humanity . . . marked by a beneficent Communism." Still, before the millenium comes (in A.D. 2449) the world will have to face "the great climacteric, which lasts from 1991 to 1997, and which ensanguines the whole of the East." But whatever happens in the East the English can be of grod heart (Sepharial is always a patriot) : "The Anglo-Saxon race will be the paramount power for good in the world during the next sixteen hundred years."

Throughout history all foms of divination have tended to theive on major wars. World War I was mo exception. Alan Lero, whomong popular astrologers was far more successful than Sepharial. gave three lectures in 1915 on "Mars; the War Lord." He too is patriotic and looks for historical precedents. "At the time of the Crimean War. the War Iord Mars was in the sign Leo, and it ended in a vicory for the Bristh Lion." This astral pattem was repeated in the Boer War. (Leo is careful to point out that Mars is not necessatily malefic.)

As in the Second World War, astrologess were on the whole oplimistic. And precise-when they were renospective. Many accurate horoscopes were produced retrospectively-for example, one was cast for the Lustana for the time of her launching. It seens also flay that astrology emerged from the war stronger than it had been before it. And this in spite of many exploded predictions like Leo's or Sepharials.

Examples of this aftermath in the 1920 wifl be given in the next chapter. The most remarkable developments were in Gemany; England produced curiosities, like a book pablished in 1928 entited The Brontës and their Stars, by Maud Margesson. Its publication impties at least that the sort of people who would read the books of the Bronte sisters. or who would be interested in them as personalities, would also be interested in them astrologically. The author

admits that her own book can only be approximately corrcct astrologically, since with all of the Brontës only their birth days are known, never their birth hours. Thus there is the problem of deciding the rising signs; but this docs not deter Miss Margesson. The "only sure and dependable guide to the ascendant," she says, "where the time of birth is unknown, is an intimate knowledge of character and carcer." Fellowing this topsy-turvy procedure, she finds with Emily, for example, that "there seems to be only one sign that could possibly represent her, and that is the fixed, intense, reserved sign Scorpio." She also stresses the family resemblance in the four Brontë children's horoscopes, pointing out that in each of them "Mercury, the ruler of the mind, is in aspect to the mystic Neptune and the occult Uranus." Unlike the astrologers quoted above, Miss Margesson has no qualms about making these two planets work for individuals.

In the United States (which, with the exception of the theosophists, had been slow to take to the "royal art") the great pioneer was Evangeline Adams (18651932), whose married name was Mrs. George E. Jordan and whose philosophy, according to herself, was "a compound of truths of all truths." She was said to be a descendant of John Quincy Adams, sixth president of the United States, which is easy to believe, in respect at least of her drive, courage, and success. According to Irys Vorel, the author of the American Astrological Handbook, Miss Adams's career "was truly meteor-like. . . . 'I have Mars conjunct my natal Sun in the 12 h House. I will always triumph over my enemies!' she said." Her first arrival in New York City, to set up as a reader of horoscopes, had indeed been meteoric in more senses than one.

Having checked in at the Windsor Hotel on Fifth Aventue she proceeded to inspect the natal chart of its owner, Warren F. Leland. The chart told her that he was threatened immediately with a terrible disaster. Mr. Leland at once thought of a crash on the stock market but then remembered that the next day was a holiday, which meant that stocks couldn't go down at least till after that interval. But what the stars were threatening was not Wall Street but the Windsor, which was burned to the ground next afternoon. Miss Adams lost many of her belongings but had laid the foundation of her future fame as the most popular reader of horoscopes in America.

For all this, in 1914 she was arrested for fortune telling and, instead of buying herself off with a fine, elected to stand trial. She appeared in court loaded with reference books, explained how she made her forecasts, and then capped theory with practice by reading from a birth date of a person unknown to her, who happened to be the judge's son. The judge concluded that: "The defendant raises astrology to the dignity of an exact science." Contemporary astrologers in New York have reason to bless Evangeline 'Adams for this showdown: Fortune telling there is still illegal but, as is not the case in England, astrology is no longer deemed to be fortune telling. In Washington, D.C., however, as late as November 1959, an astrologer named Katherine Q. Spencer was brought to court on a fortune-telling charge. Still, she too was acquitted.

|  |  |  |  | Sun |  | Mon | Tues V | Wed |  | Thurs |  | Fil |  | Set |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Saiurn |  |  | 4 |  | 0 | 3 | 0 |  | 9 |  | 9 |  | 9 |
|  | Jupiter |  |  | 5 |  | 1 | 4 | 1 |  | 1 |  | 1 |  | 1 |
|  | Mars |  |  | 4 |  | 0 | 3 | 0 |  | 9 |  | 9 |  | 0 |
|  | Sun |  |  | 4 |  | 9 | 3 | 9 |  | 9 |  | 9 |  | 9 |
|  | Venus |  |  | 8 |  | 4 | 7 | 4 |  | 4 |  | 4 |  | 4 |
|  | Mercury |  |  | 7 |  | 3 | 6 | 3 |  | 3 |  | 3 |  | 3 |
|  | Moon |  |  | 2 |  | 7 | 1 | 7 |  | 7 |  | 7 |  | 7 |
| 11 | hours |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Sunday |  | Sun |  | 111 | Monday | Moon | 7 |  | 8 | 15 |  | 22 |  |
|  | Monday |  | Moon |  |  |  | Saturn |  | 2 | 9 | 16 |  | 23 |  |
|  | Tuesday |  | Mars |  |  |  | Jupiter |  | 3 | 10 | 17 |  | 24 |  |
|  | Wednesday |  | Mercury |  |  |  | Mars |  | 4 | 11 | 18 |  | 24 |  |
|  | Thursday |  | Jupiter |  |  |  |  |  | 4 | 11 | 18 |  |  |  |
|  | Friday |  | Venus |  |  |  | Sun |  | 5 | 12 | 19 |  |  |  |
|  | Salurday |  | Saturn |  |  |  | Venus |  | 6 | 13 | 20 |  |  |  |
|  |  |  |  |  |  |  | Mercury |  | 7 | 14 | 21 |  |  |  |
| IV | AYIQ $=$ | 1 | BKRC | $=$ | 2 | V | Alexandra Park |  |  | $=$ | 5 |  |  |  |
|  | GLSSh $=$ | 3 | DMT | $=$ | 4 |  | last winmer |  |  | $=$ | 2 |  |  |  |
|  | EN = | 5 | WVXU | $=$ | 6 |  | planetary hour |  |  | $=$ | 0 |  |  |  |
|  | $20=$ | 7 | PHF | $=$ | 8 |  | winnung number |  |  |  | 7 |  |  |  |

How to pick the winner in horse racing by a numerological system (evolved by the Eritish astrologer Sepharial) that includes the use of "planetary hours." Take a race rurias Alexandra Park at 4 PM. on Monday. April 22. 1963. First. the name "Alexandra Pask:" is convertea inio numbers by relating each letter to the figures in Table IV: $A=1 . L=3$. $E=5$. and so on. These numbers are added together, and then the figures of the total (41) are added: $4+1=\mathbf{5}$. This process is fepeated with the name of the winner of the preceding race; say the result is $\mathbf{2}$. Next. the planetary hour is calculated. Each hour in a day is ruled by a planet (Table |ll). The race was rurion Monday. the Moon's day, so the first hour is the Moon's. So are the eighth hour (since only seven planets are used) and the 15 th. As Table lll shows, the 16 th hour (4 P.M.) is Seturn's. Table i shows that Saturn or. Monday has a numerical value of 0 . Now, as shown in Table $V$, the thee numbers that have been calculated are added: $5+2+0=7$. Finally. all the names of the runners on the race card (right) are ransposed into figures; and the one with the value of 7 will win.
Alex. Park Mon. 22 nd Apr. 1963
Sin Race 40 M.\&C.(Racing)Ltd.
1
2
3 WESTERIN QUEEN
4 AYLWIN
5 ANAHITA
6 ESCORT
7 FANCY NANEY
8 PREPOTENT
9 THE TEASE
7
8
3
5
5
6
8
(An earlier astrologer whose fame equaled Miss Adams's had not been so lucky. In 1917 Alan Leo had been prosecuted in London on a charge of "pretending and professing to tell fortunes." Leo's lawyers brought a good defense. They argued that Len was not an imposter, becanse be was practicing a science in which he had a bona fide belief. They pointed out that free will was an integral part of the science; that astrology merely told "tcridencies"; that if a man chose to go out when bombs were falling and get killed, the fault was his own and not in the stars. Leo himself stated that he did not claim to be able to predict the future or the fortunes of others, and tried to emphasize his legitimacy by adding that his clients were mostly of the rich and inteliectual classes. But his judge was unimpressed; he fined Leo $\$ 5$ and $£ 25$ costs.)

Having thus made astrology respectable. Miss Adams began to be consulted by the great. In her studio at Carnegie Hall, New York City, she was visited by King Edward VII, Caruso, and Mary Pickford. As for J. P. Morgan, Evangeline Adams wrote: "He was sceptical at first but I convinced him. During the last years of his life I furnished him a regnlar service. It explained the general effects of the planets on politios, business and the stock market." In Your Place ameng the Stars Miss Adams explained Morgan's success: Among other things in his chart, Jupiter was "tied down very firmly to the material plane, but on that plane he is made very strong." It is probably due to this dymanic lady more than to any other individual that today, according to the American Federation of Astrologers (who admit these figures are merely estimates), the number of horoscopes cast per year rums into millions. The money spent on them would probably run into millions also.

On April 23, 1930, Evangeline Adams hegan to broadeast three times weekly on her subject. Three months later she annomed that she had received 150,000 requests for horostopes. A year later the letters and requests were coming in at the rate of 4000 a day. It seems clear that she was a "radio personality" and that listeners regarded her as almost a friend. She died on November 10, 1932. Two days later the New York Tomes published some rather pained paragraphs-pained not by her death but by her life: "Radio and astrology dancing to victory hand in hand make a sufficienty odd couple: but that is not all. This inconyruous fellowship has fourished in an age of intellectwal emancipation . . ." etc. For the writer of this piece Miss Adams had obviously been both anachronism and arch-enemy:

On November 13 she lay in state in her sudi at Carnegie Hall : the public was admitted from noon till 7 p.s. On November 14 her funeral service was thronged with both personal arquaintances and listeners and there were thousands of telegrams of condolence. The preacher commented on Miss Adams's "love and undersanding" of her fellow men. To add a posthumous touch of myth, Ings Vorel declared later that Evangeline Adams had predicted her own death and for that reason had poliely declined a 21 -night lecture tour which had been offered her for the attumn of 1932 .

By this rime the once royal an had becone almost wholly the property of the people, and the mass-commonication media were folly aware of its drawing power. In Britain, one of the principal chamets for mass astology was the more "popular" kind of Sunday newspaper such as the Prophe and the Sundap" Expurst. In the Prople Edward Lyndor (who damed to be "the most consulted astrologian of all time") was by the end of 1934 forelelling the immediate ${ }^{2}$ decline of Hiter, Also like so many sucessful jommatisk in other spheres, he exploited the good will of his readers by publishing books. A eypical example is lour hex Ten lears and After (1935). whim professed to help anvone, in accordance of course with his stars (no tronble here about fad horoscopes). to beter himself and his career.

Lyndoe's recommended method is antosmergestion. Size yourself up according to fous stars, then make the appropriate suggestions to yourself over and over: "Then go ont and win!" All he asks his reader to go by is the day of his birtli-ie., what sign the Sun was in at the tine (a bery mogh-and-ready start-ing-poin but the usual one, inevitably, in astrological joumalism). Knowing then What sign you belong to, sine you know your own bithday, all you need to do is to repeat to yourself a particular set of slogans supplicd by Lyndoe one for each day of the wetk. Thms on luesday if you are Leo. you will say over and over to yourself when yon are alone. as when in bod: "I am more positive today than ever belore." If you are Virgo: "One thing at a time, and that one done efficiontly": if Sagitatrins: "is a spormman I take the rough with the

Ametica's Evangeline Autams helped to make astrology bothrespectable and popular. Her acquital in 1914 on a fortune-telling charge improved astrology's stalus as a profession: latex, herregular radio broadcasts antracied a vast eudience and a huge fan mait.


Britain"s Prime Minister Neville Chamberlain returns fromi Munich in 1938. Chamberlain's words "peace in our time" were echoed in predictions by most British astrologers. All were proved wrong by the outbreak of war in the following year.
smooth": if Aquarius: "I believe passionately in the brotherhood of man." Lyndoe also advises each group what they should concentrate on in each of the next 10 years.

A similar book. What Four Birthday Stars Foretell (1933), was written by Lyndoe's rival, R. H. Navlor of the Sunday Express Lyndoe's book had contained no predictions: Naylor, knowing only too well that hardly any of his readers will know what their biribday stas rally are or were, is careful to admit in his introduction that his book is by its nature rough-and-ready or, as he calls it, "generalized." And, he goes on, "it has atl the faults of a generalization." For all that. it must contain some truth and therefore be some help to the reader. It deals, he explains, with "hasic fundamentals of character and fortune. Superficial differences will result from variation in place of birth (horizon), from year of birth, and reen from heredity and enwironment" (italics minc). But for truly professional astrologers, as we hase seen, the basic fundamentals of character and fortume could not be cotablished without a knowledge of the moment of birth, which gives one the all-important ascendant.

Apart from this catering for stock-type "individuals" (all humanity being divided into 12 groups), this period saw a boom in mundane astrology- the foretelling of public events by people who were as often off the targes as the politicians homselves. Thus Lous de Wohl wrote in June 1938: "To an astrologer the world picure is perfectly dear." He saw, foe instance, that "the dominion
of the Mercury types, that is the purely intellectuals [sic] of a people, no matter which it may be, must have disastrous consequences at the present stage of culture and civilization." Note here the anti-intellectual bias that modern astrologers tend to share with modern politicians (hongh, to be fair to de Wohl, he was dinking mainly of Hisler and Mussolini).

As we shall see in Chapter 7, de Wohl was to be imolved in the coming war in his capacity as astrologer. In the meantime his predictions wert, true to type:, optimistic-and unfortunately incorrect. He finds his adopled country a model of stability because Chamberlain had an excellent horoscope and hecause the British Govemment is a solar system in miniature; so there would be no war in the near future. And (writing in Jume 1938) he can see that "Autumn 1938, the furst three months of 1939 and simmer 1940 bring heavy weather for Gernany." He adds: "I do not believe that Mahatma Gandhi will survive the first half of 1939." (Gandhi lived till 1948.)

As World War II approached, the astrological joumalists (in Britain at least) were almost unanimous in denving that it would happen. In 1939 a peculiar book appears, by one "Leonardo Blake" called Hiller's Last tear of Power. Blake is a much lower grade writer than de Wohl, but his statements demonstrate the sort of thing people read and find consoling. The foreword of his hook states flaty: "Be reassured: there will be no war."

Blake explains why: The destiny of Geman was "fixed unaterably by the horoscope of Jarmary 18, 1871, when that country was firs unifued by Bisnarch." Though this horoscope is the really important one, it is confmed by the horoscope of the Geman Republic for November 9. 1918 . As for Hiter"s laroscope. it compares very badly with Mr. Chamberlain's: Hiller's power will "ebb away" in Seprember 1939 and in June and July 1940 his "attempts to extend his actisities will not surceed." Blake added the prediction that Gobbels "will not survie the crisis of $1940, "$ and that the summer of the same year would see the defeat and downfall of Hitle:

While harmessing the stars 10 Chambertain's charion, Leonardo Blake mammally played down Churchill, though admitting that his horoscopr showed profundity, magnanmity, and breadth. He Joresaw that "Mr. Churchills role in affairs during the decisive years to come will not be played at the head of a Eritish Cabinet. Nor will he become a factor in tuming the scales of British policy . . . . But when, in 1941, the progressed Sun tansits together with the progrescod Satum, a quiet and even a little less happy period braks for him. He is going to retire more and more from public life . . . "

It is unnecessary to multiply instances of such popular astrological predictions made on the very eve of the war. We shall see in the next haprer bow these astrologers were in on way detered from continuing such predetions whike the war was being waged. And their public were in no why disenchanted with dem. At the same time, this was not the whole wartime story of netology. The whole story was a good deal odder than that.

## 7 Coming up to date

Just before the Second World War broke ont, people like Leonardo Blake were only too ready to foretell that it would not happen. But as soon as it happened they snatched up their pens and were at it again. Thus Blake followed his Hiller's Last Year of Power with The Last Year of If ar-and After. For him the last year of war was to coincide with the first year of war: He seems to have writen his book in the autum of 1939. Anyway, it was all to be over by the middle of 1940 . Blake was well pleased with himself: He claimed that 10 of his predictions in Hifler's Last Year of Power had been verified. As for this new book, here, said Blake, "we are writing history in advance."

The crux of the new book was that in 1940 We German nation would revole and overthrow the Nazi party. His more particular predictions were as follows: (1) On March 7, 1940, there will be "brilliant successes" for Chamberlain.
(2) April 20 will be Hitler's liast birthday when his Sun will be in conjumetion with Satum and boih square to Pluto.
(3) "About May 5, 1940, the transiting Jupiter has io pass over Saturn: a black day for Nazi Gemany."
(4) June 1940 will be crucial.
(5) "The July days of 1940 are dark days indeed for Hiter."

Throughout the book Blake keeps threatening Hiller with "universal law." We all know how that law [unctioned in 1940.


The oventhelming German successes in Europe did not discourage the astrologers of Britain-especially not those of the popular papers like Editard Lyndoe. He came out with the hopeful statement: "The big event of 1941 will be the sudden emergence of a World Leader." This would be the beginning of a new era; but as to the nature of "this coming" (a phrase with a religious sound), Lyndoe wrote: "I reserve my statement." Nor would he commit himself as to the length of the interim period before right triumphed oser wrong; the merely hinted that in 1943 investment possibilities would be better than they had been in previous years.

It was this incurable optimism on the part of British astrologers that in June 1442 occasioned that question in Parliament mentioned in Chapter 1. The questioner, who wanted a ban on astrological prediction about the war, got litue satisfaction from the Minister of Information. The former had quoted the People (Lyndoe's paper) to the effect that a German invasion of England was impossible. The Minister merely commented that astrologers in other papers sadd England could be invaded.

Some 10 months before this, when Britain had been at her most defenseless, the anthropologist Tom Harrisson (fonnder of Mass Observation) had published an article on "Mass Astrology" in the New Statesman and Nation of August 16,


Three British newspaper astrologers, whose astrological predictions on the course of the war were a regular feature of the popular press during the 1940 s. left to right. Edward Lyndoe, R. H. Nayler, and Adrienne Arden. All :hree appeared in a survey by a Eritish magazine in 1981. which analyzed the accuracy of their forecasts. Out nf a possible lotal of 30 marks, Lyndoe scored 9. Naylor 12, and Adrimne Arden 4.
1941. In a cautious foomote to this article Hatisson explains that he is not concerned with "astrological theory, accuracy or intention" but "only with the social effects of contemporary mass astrology." Axtrolugy, he points ont. had become "an extensive British interest" since Naylor started in the Sunday Express in 1930 and the currem war had given it a big additional hooss. Mass ObsetwaLion had accordingly been conducting for the past there months a detailed study of the effect of astrology tupon ordinary peuple. What this means is that, in accordance with Harrisson's own directives, a large number of researchers"mass observers"-had gone round with notebooks interviewing perple.)

The findings of the observers, as summarized by Hamisson, were roughly as follows: Interest and belief in astrology had "tended steadily to increase since the war," the chief channel being the Sunday press and the chief, addicts being women. Astrology had a complex appeal that included at "constant emphasis on the bright side." Harrisson admitted that, especially among housewives, "the immediate effect is favourable to morale . . . But the long-tem effect is to stress fantasy confidences rather than real ones, and to cmphasize the personal interest rather than the common interest."

This article sparked off a couple of others in the illustrated British weekly Picture Post. These were more journalistic in tone than Harrisson's. The first


## IUF IVOSSMEDO IDPSSMOTNO <br> Periodo dal 12 al 18 Novembre pet ogni tipo todiacale

|  | Non siate pessimizti. ma pratict e realisti, specir se doveste de. crdere un fidanamen10. Telefanate inceressanti. | Hiserthert, lavorate, ma non eccedete in fatiche protungate. |
| :---: | :---: | :---: |

# FRAMCESCO WALDNER horoscope 





BELER
ThUREAU


(mededby
CANCER

## LION









CANGER (dume 22 duly 2a) Thers ate thece inmportant datey for







began: "The war has brought to millions of minds a new kind of faith, a new kind of stimulus, a new kind of drug or habit . . . About forly per cent of the people, manly women, have some belief in astrological prediction." The author again drew heavily on the Sunday menspapers and stressed the way so many of these journalists avoided discussion of the erents that really catled for it. He noted that many astrologers had predicted that Hiter would inade Sweden, one of the few countres sear him that he left alone. As for the Geman invasion of Russia, Lyndoe had successfully predicted it in the Peothe whereas in the Sunday Expmes for Jume 22, 1911, Naylor stated defantly of Gemany and Russia: "I still hold to my lorecas that they won't quarrel yet." It was on Jome 22, 194. that Gemany insaded Russia.

In November 1941, Pirbure Post published another anticle entited "AstroJogers Again," occasioned by a lunch given to astologers by Mis Christima Foyke. London's biggest bookseller. At the lunch Naylor, irritated by his critics. acoused them of having "the immovable ideat that astrology postulates that the stars influence mankind. The modern astrologer makes no such absurd statement." In the speech that mmediately followed, one Gipsy Petulengro (of the Sunday (hronicle) said: "I fimbly believe that the stars rule the destiny of

Left. extracts from three astrological features published in women's magazines in lialy (iop). France (center), and Brisain (bottom). Below, a group of women gathered around a market stall buying prefabricated horoscopes based on Sun. signs As Eritain's Mass Observation found, this type of poputar astrology make: its greatest appeal to women.


The well-known Eritish newspaper astrologer
Gipsy Patulengro addressing guests at a
London luncheon held in 1941. At the
luncheon, he and other authors of astro-
logical columns in the popular peese made speeches justifying both thetr asirological beliets and their wartime predictions.
mankind and nations." Petulengro alse stated that he had foresen the fall of France but had kept it dark in case he shoud be thought defeatis.

Several grades up from the Sunday fortune telers was the area in wheh Louis de Wohl operated. Though he clamed Hungary as his fatherland, de Wohl had lised till 1935 in Germany, where he was fairly well known (under the name of Ludwig von Wohl) as a novelist, jommalist, and film seriptwriter. He had also been an enthusiastic amateur astologer; when he cance to London he began to turn professional.

Linlike most British astrologers he had the entrée to what would now lee called "Establishment" circles and the war gave him the chance to exploit these connections. According to himself, de Wohl met the British Foreign Secretary, Lord Halifax, who asked him for information about Hiter's horoscope. Following this, about September 1940, it seems that he entered the Psychological Research Bureau, after which the was commissioned in the British army with the rank of captain. He had in fact become the British government's official astrologer. (He claimed to have been the sole such official on the Allied side as against six working (or the enemy.)

His activities were by their nature secret and for his conduct of this astrological war we must rely mainly on his own account. That he was employed at all does not mean that his distingushed employers beleved in astrology. Like a great many other people, they believed that Hiter employed astrologers; de Wohl's job was to check what Hiter might be told by his astrological advisers.

In fact, there is no evidence (whatever was the case with the other Nazi leaders) that Hiter himself had any bedief or even interest in astrology. Inded, there is evidence to the contrary. But during the wat and even up to the present day many people have chosen to believe that Hitler was as superstitious as some of the Roman emperors and hat, like them, he employed his own pet astrologer. De Wohl mentioned six antagonists, but he too seems to have thought that there was one in particular who was Hiter's right-hand star man. In fact, it was owing to the existence of one very original astrologer, who was supposed to be filling this role, that de Wohl himself got his curious job, with the British. The name of this bogyman (whom we have met before) was Karl Ennst Kraft.

Krafft was an essentially "modem" astrologer who wished to cht out the dead wood from the ancient art. Shortly before the war he lad published in Switzerland a Treatise of Astro-Biology, in which he employed the modern statistical method. He was an exponent of "astral heredity," coining the phrase "astrohéredonomie," in an attempt to answer a common objection and to reconcile astrology with the incontestable facts of heredity. He pointed out the coincidences of birth dates within the same family and suggested that members of the same family tend to resemble each ohor not only in their physical and psyehological make-up but also in their natal charts. All this secme rather a far cry from political warfare; but Kraft, who chose to stay in Gemany when dee war broke out, lound himself iswolved in it-to his cost.

The Swiss astrologer Karl Ernst Krafft. During World Warll, Krafft, while a prisoner of the Nazis, was compelled to produce "astrological" propaganda ; he finally defied his captors. and died in 1945 on the eve of his ranster to Quchenwald.

(For much of what follows I am indebted to Mr. Felix Nebelmeier of Swizerland, who was himself involved in political warfare-on the Allied side. Since the war Mr. Nebelneier has made an intensive study of astrology as a social phenomenon and, as part of this, has done some remarkable detective work on the true and sad story of Krafft.)

To appreciate this story we must go back to the days of the Weimar Republic. After Germany's defeat in 1918, astrology had a 15 years' boom in that country: No other country in Europe could show such a large and active astrolugical movement. This phenomenon was probably occasioned by Germany's economic and social collapse, by the disappearance of the monarchy and the old military caste, by inflation, unemployment, and poverty. As had happened often before in history, people (including very well-educated people) tumed in such circumstances to the stars for consolation.

Among the astrologers under the Weimar Republic there was a small but vocal minority of violent nationalists, who published more than their share of books and pamphlets. This minority included four confirmed raciatists whose writings were revealingly anti-Semitic. As Mr. Nebelnacier says, "no astrological movenent ever produced anything quite like this particular group."

Louis de Wohl refers to one of these nationalist astrologers, whom he (wrongly) calls "Baron Sobottendorf." According to de Wohl, in 1923 the baron warned Hiter against undertaking "anything of importance" in November of that year. "Hitler neglected the warning and undertook his famous beer cellar Putsch, which landed him in jail." But de Wohl is wrong on two counts. First, the man's name-was not Baron Sobottendorf. He called himself Rudolph Freihem von Sebottendorf, but his real name was Adam Glandeck. Just after the armistice on the Western Front in November 1918 he was a member of the ultra-nationalist Bavarian "Free Corps" movement. He was also a member of the secret Germanen order, an anti-Senitic, right-wing, esoteric association.

More important, he bought a small Munch newspaper that later, under the new name of Fölkischer Beobacher, he sold to the Nazi Party, who made it one of their chief organs of propaganda. As such it survived till 1945. Before he sold this afterward notorious paper, von Sebotendorl was also the editor of the leading Gemman astrological monthly Astrologische Rundschau. This paper belonged to a "Dr." Hugo Vollrath, proprietor of the Theosophical Publishing House at Leipzig. who later was to join the Nazi party and try to establish himself as national leader of the German astrological movement.

Furthermore, it was not von Sebottendorf for Baron Sobottendorf or Glandeck) who made the famous prediction in 1923. It was a well-known lady astrologer named Frau Elsbeth Ebertin, who edited a popular anmal called Ein Brick in die zukuft (A Gimpse into the Fubure). In the spting of 1923 someone sent her Hitlers birth date (though not the hour of his birth) and asked for a diagnosis of his chavacter. Some months later she published such a diagnosis together with the warning that it would be unwise for this character to take any precipitate action during the coming November. Hitler is said to have been shown this piece of Fran Ebertin's and to have exclamed: "What have women and the stars got to do with ne?" He made his Putseh on November 8: wo days later he was arrested and sent to prison, where he wrote the final draft of Mein Kiampl.
"Sobottendorf" continued to be at least the nominal editor of his astrological paper until about 1930, though it seens that he spent much of his time in Turkey studying old Turkish freemasonry. Having failed to mate Fian Ebertin's prediction for her, he now rather disappears from the story, More sinister characters, apart frons the Dr. Vollath mentioned abowe, were fishing in those troubled waters where the stars were reftected anong eddies of racial prejudice.

There was a Munich phesician called Dr. Wihelm Guberiet who was said to move in Hider"s circle and was credited with "mystic powers." He was an enthosiastic amateur astrologer and also clamed that he could identify people as Jeus by the use of a pendulum. Another medical doctor who lived his astrology was Karl Günther Hemsoth, a great friend of Ernst Röhm, the S.A. commander. Dr. Heimsoth, it seems, cast and interpreted Röhm's horoscope in 1929 but was unable to provide a satisfactory reason for Rölm's notorious homosexuality.

It might be expected that these people would have bect made welcone when the Nazis got power. But it did not work out like that. When Hitler cane to power in 1933 he frowned upon both Gutberlet and Hemsoth, and in the following year they were botl liquidated. Dr. Volltatl was still going strong and a Dr. Hugo Korsch (a legal doctor this time, who was also President of the Central Astrological Office) joined the: Nazi Party just in order to stop Vollrath making a comer in the stars in the name of National Socialism. Yet none of the astrologers who tried could persuade the Nazis to adopt him and grant him a monopoly.

On the contrary, Hitter's assumption of power in 1933 was, to put it mildly, a considerable source of worry to Germany's leading astrologers. Some of them had recently published articles unfavorable to Hitler and his movement, so there was some twisting and covering of tracks. Hitler's official birth hour (and hence his probable ascendant) was well known to astrologers, but juggling attempts were made to provide him with a different birth hour and thereby a different ascendant. (The object was to shift his traditionally disastrous Satum out of the 10 h house, a pesition associated with an unfortunate end to a public carcer.) But on the whole, while there had been many references to Hitler's horoscope in the astrological journals during 1931 and 1932, such references hegan to dwindle. And the fate of Dr. Heimsoth in 1934 showed that Nazi Germany was not altogether safe for astrologers. This moral was to be driven home later.

When Hitler came into power there were half a dozen "serious" astrological periodicals in Germany, including the two conducted respectively by Dr. Korsch and Dr. Vollrath. In five years' time three of these had ceased publication, including those run by Korsch and Vollrath. Vollrath was especially hard hit, since the German branch of the Theosophical Society had also been dissolved. Also, there had been popular astrelogical weeklies and monthlies crammed with political predictions of the same type as those made by the English Sunday journalists, but after 1933 there were none such in Germany. This particular opium for the masses was under a ban. In the same way every year since 1922 there had been well-attended astrological conferences in Gemany; but in 1938 a congress held near Munich was only allowed on condition that no congress report was published. Morcover; the Gestapo was present.

Then cane the war and the importance of Leing Kraft. In 1939 Karl Ernst Kraft was living in a village in the Black Forest not far Irom the Swiss border. He could casily have returned to Switzerland, but it seems that Germany suted him. He was a great admirer of the Third Reich and was not too worried by the plight of its astrologers; though he was an outstanding authority on astrology, he preferred to call himself a psychological consultant. Also, through a member of Himmler's Head Office lor State Security, he was in touch (at least indirectly) with most important people.

His link was a Dr. Fescl. Shortly after the war broke out, Dr. Fesel asked Kraffi to write sone memoranda for him. These mernoranda contained, among other things, economic forecasts based on Kraff's interpretation of planetary cycles and major conjunctions. Fesel presumably intended to circulate them among members of Himmler's organization. (Himmler was apparently one of the Nazi leaders who did have some belies in astrology.) But Kraft did not confine himself to these commissioned memoranda. He had been watching Hitler's horostope and now issted a prediction that Hitler's life would be in danger during the first 10 days of November 1939. This prediction (just like Frau Ehertin's in 1923) came home to roost in the Munich Beer Cellar. Hitler had


The ruins of the Munich Beer Cellas after the assassination attempt on Hitter in 939
Krolti had earlier predicted a threal io
Hitler's life from his horoscope: though he was arrested for questioning, there was no evidence to implicate him in the plet.
been there celehrating the Putsch of 1923 but he left before the bomb that was to assassinate him went off. Krafft promptly sent a telegram to Berlin drawing attention to his prediction and adding that Hitler's life would be in danger for a few days longer. Whercupon Kraff was arrested and questioned, only to be released for want of evidence that he had been in any way connected with the bombl. (It reminds one of William Lilly's being questioned-and also dismissedby the committee that was set up to investigate the causes of the Great Fire of London in 1666 .)

After this Kraff moved, or was moved, to Berlin. He may have made himself suspect, but sometiody must also have though him potentially useful. In 1940, kecping closely in touch with various government deparments, he was engaged in political warfare, working on the prophecies of Nostradamus. These cryptic and concentrated pieces of apparent nonsense had always come in sery handy for political warriors. Krafft did some lengthy and scholarly research on them, which was taken over by the Propaganda Ministry and angled, inevitably, to point to a German victory.

During 1940, Kraff got involved in a curious way with London (and this in its turn had repercussions on Louis de Wohll). The Romanian Minister to London, M. Virgil Tilea, being on leave in Bucharest, took it into his head to write to Krafft asking him for information about coming events. It was not that Tilea believed in astrology as such; but he had met Krafft once in Zurich and decided he had a flair as a prophet. Kraffi was llatered by this letter and, being anxious to reply to it, asked his friend Fesel, Himmler's man, how his reply could be forwarded to London. The secturity high-ups agreed to arrange it, provided they could dictate the general nature of the reply. Once again political warfare was rearing its dubious head. Kraft would have liked to let the whole thing drop, but not so Dr. Fesel and the heads of his deparment. The letter was drafted and re-drafted seven times. At last M. Tilea received it in London and Krafft handed back his last monh's salary to Fesel and said he was finished with that sort of work.

The leter that Tilea read, being by now a pure piece of political warfare writing, made him think that Krafft must be working directly for the Nazis and possibly for Hitler himedl. This suspicion was enhanced by the fact that the leter had been sent from Berlin. Tilea showed the letter to various important people in London and suggested that, if Hitler was employing an astrologer (Kiafti). it would be sensible of the British to employ another astrologer to tip them off as to what his opposite number would be up to. At first the British high-ups did not respond to this suggestion very eagerly, but finally (on Tilea's surgestion) accepted Lous de Wobl. De Wohl went through the rest of the war imagining he was comtering Kraft in Berlin.

But Krafft did not spend the rest of the war in the way de Wohl assumed. On Jume 12. 19-41. he was arrested. Like many other things this was the fault of Rudolf Hess, another Nazi leader who. like Himmler, was gencrally though
to be under the influence of astrologers. Hess's manthorized Bight into Scotand precipitated a great deal of face-siving and sapegoat-finding in Gemany. Among those who suffered, thanks to Hess's reputation, were the astrologers. After all. Hess had had one on his stafl at the Brown House in Mmich-a certain Emst Schulte-Stanhaus, who was ollicially an expert on ar. SchulteStrathons denied that he had ever given Hess any asmological advice or that he had any idea that Hess was going to leave Gemany, but the sheer fate of their association provided another weapon against the astrologers. The Gestapo went into action.

The object of this action was twofold: first, 10 discover whether any astrologer had been comected with Hess ; secondly, to destroy the whole astological mowment in Gemany: It had been decided that the astrological It elfanshanumg must by its nature be unsympathetic to National bocialiem and that the astrologers as a class were socially modesiable and politicall! wordiable. The Ahtion Hess began on Jane 9, 194!, and continued for several weeks. Amateur and professional astrologers were rounded up left, righ, and center and their technical libraries and personal papers confisated. Also seized were all publishers' and booksellers stocks of astrological literature.

Most of the people armested at his time were released fairly soon, after signing an undertaking to cease practicing astrology or ever discussing it. But there were two or thee of the more serions astrologers who were never released. Among these was Kraffit (though this was not known to his opposite number de Wohl). After spending a year in solitary confinement in the Alexanderplat\% police prison in Berlin, Kraft was transferred during the summer of 1942 to a Propaganda Ministry building in north Berlin. Here, though still a prisoner, he was ofte more forced or persmaded into hamest for political warfare purposes and for three or fow months tried to work his passage to fredon wia the stars.

It sems that he had been promised his release provided dhat over a certain period his work net the requirements of his masters. But there was a proviso that he would have to contime to work for them. Whether his work satisfied he Propaganda Ministry or not (il not, it would lee to his credit), he ohvionsly began to suspect that the promise would not be keft. Eventuatly he refused any further collaboration wihh his jaiters. He was then stut up in the Lehrterstrasse prison from which he was thansferred to the Oranienberg eoncentration camp. He was being translered again (this time to Buchenwald) when he died on January 8, 1945. (More details about Kraff's astoobegal theory and practice will be given in the next chapter.)

In spite of the official "extemination" of astrology in Germany, a Cew practitioners did continne to be enploged after the Aktion Hess, presmably because (to save then own skins) they were more willing or able thath the prerhaps overscrupulous Kraffit to divert their art to he needs of political warfare. One such was a well-known Hamburs astrologer called Winff who suctalized in Hindu trehuigers and who is mentioned in The Las Dajs of flither by the British

Below the Hungarian-botn astrologet Louis de Wohl. During World War II the British Government employed de Wohl to anticipate predictions by Hitler's alleged astrological advisers. From Mussolini's horoscope (right), cast in 1941, de Wohl correctly predicted "a violent and sudden end" for the Italian dictator.

$\operatorname{mon}+\frac{\pi}{x+\pi}$

Bensufes - thatasoliqui

1.5यト C

Forbor Mracum

historian Hugh Trevor-Roper. But it should be noted that lifull was to all intents and purposes a prisoner on the estate of Himmeres massemr. In secms he was used by the head of the Geman secret service Schallenberg to influence Himmer, who toward the end of the war was in a vacillating but suggestible state of mind.

Further evidence that astrology had not completely disappeared is implicit in a letter written by Gerda Bomann to her lushand (Martin Bomann, Hess's Chief of Staft and later Hitler's thind deputy) on October 26, 1944: "Just as at the end of the last war," she observes, "fortunc: tellers and prophets have a strong following." On which Bommann has scribbled the comment: "I never even get such rubbish! Don't want to see it cither!"

But much more striking than this is another episode recounted in The Lust Days of Hitler. Hitler himself, as already stated, had little use for astrology and since 1941 the art had been officially condemned by his govemment. All the same, by the second week of April 1945 it was perhaps a case of any star in a storm. Goebbels in that week sent for wo horoscopes-those of Hitler and of the German Reich itself; both had been "carefully kept in one of Himmler's research departments." These he discussed with the Führer is the light of an encouraging historical precedent: When Prussia was on de verge of deleat at the end of the Seven Years War, the tsarina of Russia had unexpectedly died and saved the situation for Frederick the Great. Sure enough, the two more recent horoscopes did hold forth the prospect of a similar "reversal of fortume." For both these horoscopes, according to Professor Trevor-Roper's infomant, "had unanimously predicted the outbreak of war in 1939, the victories till 1941, and then the series of defeats culminating in the early months of 1945." The point was that these disasters were to be followed by an overwhelming victory in the second half of April 1945, and by peace in August: Germany would be great again by 1948.

Then folleved the deatl of Roosevelt (compare the tsarina in the other war) and Goebbels at once telephoned to Hitler: "My Führer, I congratulate you. Roosevelt is dead. It is writeon in the stars that the second half of April will be the turning point for us. This is Friday April the Thirteenth. It is the turning point!" A Cortnight later both men were dead.

What was Louis de Wohl doing on the allied side while all this was going on? He himself gives us some of the answers in The Stars of Whar and Peace (published 1952). His initial job, to counter Hitler's (presumed) astrological advisers, simply meant "making the same calculations so as to come to the same interpretative results, which enabled us to know what he onght to be told"-after which it remained only to guess how much they would dare to tell Hitler or how much they would cook their findings.

But some of de Wohls activities were more positive than this. While he wrote that it was "to the honour of American astrologers" wat "many of them had wamed their country of the imminent Japanese attack" on Pearl Harbor, he
himself claims to have foretold the result of the battle of Alamein after comparing the horoscopes of Montgomery and Rommel, which had been submitted to him without his knowing whose they were. And after 1942, when Hiter lost the initiative, de Wohl clams triumphantly: "Now we would time our actions against him . . . Thus, when we attacked Sicily at the beginning of July 1943 when Jupiter was in 'square,' in an angle of 90 degrees, to the Sun position at Hitcr's birth, Hitler knew that 'luck' was against him." De Wohl adds that Hitler also knew that astrology was being used against him: "We had seen to it that he knew." And he spares a word of pity for Mussolini who "had a beautiful horoscope" and who should have had sound astrological advice.

Another activity of de Wohl's during the war is mentioned in Black Boomerang by Sefton Delmer (published 1962). Delmer was the chief of British "black" political warfare, which specialized in disseminating lies of every sort for the confusion and undermining of the enemy. At one point it was decided that astrology too was worth a lake. There had been pubished in Germany up till 1938, when it was stopped, a successinl astrological periodical called ₹enil Delmer revived Eenit for a few issues and de Wohl wrote the texts for him. These contained astrological predictions written affer the events to which they referred—predictions of a kind, say, that might well put of German submariners from going to sea in their [j-boats.

When we now read de Wohl's rather pompous accounts of his own astrological war (the gallant captain with a bandolier full of horoscopes) or think of the ups and downs of the Gemman astrologers, the Second World War starts to resemble one of those galleries of distorting mirrors in a funfair. We saw in Chapter 2 how de Wohl himself atributed the techmical inventions of the war to "Uranus running amuck." As for the bomb that ended the war with Japan. he naturally could explain that too. He cast Japan's horoscope retrospectively for July 16 , 1945, and found that Mars was in conjunction with the fixed star Agol, known as the Head of the Medusa, "the worst fixed star we know of." (Algol had had an evil reputation through the ages, being called by the Arabs "the Demon." This presumably was because of its fluctuations in brigheness. We now know that it is an example of a "binary system"; i.e., Algol is really two stars that revolve around, and therefore at intervals eclipse, each other.)

## The postwar world

So much for World War II. What of astrology since? ln defeated Germany, astrology made the same sort of comeback after its suppression under the Nazis as after the Kaiser's war. And for very much the same reasons. In Hamburg in 1947-48 a popular lecture on astrology could attract an audience of 500 or more. This is not so today, perhaps becanse Germany has become too prosperous.

Mr. Nebelmeier, who supplied me with the sad tale of Krafft, makes the comment that "if any moral at all can be drawn, it is that astrology canot fourish under either a totalitarian regime or conditions of almost universal prosperity."


In Germany today, astrotogy flourishes agam in spite of its wartime suppression. - ne of the best-known German astrologers is Elfrede Keiser, who is sad to number leading politicians among her chentele.

But, if popular astrology is on the wane in Gemany, it still remans the comery where astrology is created most seriously, if only by a handful of unusually imaginative scholars.

Among these scholars, Dr. Walter Koch might le selected as representative: of the highly acadenic approach to astrology-an approach that is betoming more and more widespread today. With other German astrological sabolars, Koch has been deeply involved in investigating the contoversial question of the 12 houses and the mathematical principles involved; and he has published versions of the Regiomonanus and Placidus tables of houses. Fooh's other prewar works include numerous articles on Greck and Roman asirology, a book on Astrological Teachings Concerning Colors (which grew out of his interest in psychology', and another entitled 7 he Son of the Gemmone. which deals with the occule properties of precious stomes.

Koch's carecr suffered a serious seback during World War II, since he was one of the astrologers imprisoned by the Nazis, and his astrological library was burned by the Gestapo. But after the war, Koch returned to his astrological studies, and was one of the founder members of the Cosmobiological Society in 1946. This saciety published the first edition of the Astrological Monthly in 1949. to which Koch has since been a regular contributor.

In 1959, Koch was appointed scientific adviser to the Association of German Astrologers and that year read a paper on "The Symbolism of Astrological Geometry" to a congress of German astrologers. He has been in the forefront of the modern astrological tendency (which is especially obvious in German astrology) to seck tie-ups between astrology and psychological knowledge. One of the most interesting of this academic scholar's puhblications, called Introveth and Extrovert, is "a study in psychological astrological interpretation."

Introversion and extraversion are, of course, temms given to us by another imaginative scholar who gave astrology the benefit of the doubt-C. G. Jung. Jung also investigated the possibility of links between astrology and psychology; but he was one of a very few who approached the subject frome the psychologist's viewpoint, not the astrologer's. He is always being claimed by modern astrologers as a champion of their canse ; but, apart from his rather gencral statement that the moment of a man's birth remains part of his make-up, it would seem that he kept an open mind. He would certainly not have committed himself to the more specific (or arbitrary) assertions so beloved by most astrologers.

In 1950, Jung wrote a tratise called Synchronicity: an Acausal Connceting Principtc. The word "synchronicity" has since been snapped up by astrologers in their eagerness to find a substitue for the now generally discarded idea (face Giipsy Petulengro and the Hindus) of "astral influence." Thus in 1962 a lady assoleger named Katina Theodossiou declared in a British radio program that cause and effect were oun and synchronicity was in: When the planet Mars is active certain things happen on earth (wars, revolutions, etc.) but "the one does not cause the other, they merely coincide."

But what does syachronicity mean? In his treatise Jung starts from the assumption that "the comection of events may in certain circumstances be other than causal." If one could prove, he argues, that "there are genuinely non-causal combinations of events," we should have drastically to revise our view of things, as man has had to before and perhaps is being impelled to now by such

[^6]

# KOSMOBIOLOGIE 




AUS DEM INHALT:
Zumbreginn
des 30 Jahrgangs
Aogstictakeiten und
Grenzen kosmischer
Themathk:
Die persombichen
Punkte am
Kasimogramon
Medium coelt $=$
lahbewultesein
Atnormitaten
4. a



A mandala (or "magic circle") drawn by C. G. Jung in 1928. The mandata form is fundamental to many of the great Eastern religions, such as Tacism or Euddhism. Though it can be seen as a symbol of the soul or psyche, it is also a representation of totality-in effect. of the oneness of all things in the universe (whose interrelationships depend more on synchronicity than causality). As Jung points out, this oneness is much the same as the ancient concept of correspondence, or sympathy, which was long used to explain and cletend astrologr.
phenomena as E.S.P. "We should then have to assume that events in general are related to one another on the one hand by cansal chains, and on the other hand by a kind of meaningful cross-comection." In other words, events that happen at the same time can be related either becanse one hats cunsed the other or because they each have a similar meaning to the mind that perceises them. (Or, of course, they can be chance occurrences, not related at all.)

To give a concrete example of what he means, Jung tells a striking but rather long tue story about a recurrent plum pudding. It is easy to invent more brief examples with numbers: A man who had been born at 19.58 hours ( 7.58 p.m.) might have noticed on his birthday (though not necessarily on his birthday) in A.b. 1958 that his bus ticket was numbered 1958 and then have gone on that evening to score 1958 in some game of chance. That would either be pure chance -a concept that worries Jung as much as the rest of us---or an example of his non-causal principle of maningful coincidence. There have been many cases where a clock has stopped ("never to go again," as an old song says) at the instant of its owner's death. This, too, would be synchronicity: The clock's stopping would be symbolically (not causally) related to the person's death.
"The primitive mentality." Jung writes, "has always explained synchronicity as magical causality right down to our own day, and on the other hand
philosopthy assumed a secret correspondence or meaningful connection between natural events until well into the eightenth century. I prefer the later hypothesis....." It will have been noticed that, through the centuries, some astrologers bave worked on the former hypothesis and some on the latter. In the concept of synchronicity there are echoes of the idea of "sympathy" (beween human life and the universe) that has cropped up so often in our history of astrology.

It was the search for meaningful comections that led Jung to undertake his "astrological experiment." With the usual hinds of check and precantion to avoid foreknowledge or cheating on the part of the investigators, he took as his field of statietical study 483 marriages (i.e., 966 horoscopes). These horosopes were paired off in different ways, and the object was to establish the differences between the married couples and the non-married. As often lappens in such experiments, the first results were the best: In the married couples horoscopes certain aspects (for example, the woman's Moon in conjunction with the man's Sun〉 appeared most frequently; and these aspects were the same ones that, according to the long astrological tradition, most favored marriage. But the experiment as a whole was judged by Jung to be inconchusive.

Jung had defined synchronicity as "a psychically conditioned relativity of space and time." To the modern way of thinking, if there is anything at all in astrology, it must involve a rearrangenemt of our concept of lime. 'The Australian astrologer Purze Morrish writes (in a conment on Jung): "It seems, indeed, as though time . . is a concrete continumm which conains quatities of basic conditions manilesting simultancously in various places in a way not to be explaned by causal parellelisms." Synchronicity (or, as Morrish calls in, "synchronism") might "help some scientists to understand how astrology could work without any mechanical apparatus linking star and human." On the other hand, he does allow that there may be "astro-causation" between planets and persons, possibly by waves through the ether.

This concession of Morrish's about astro-cansation rescmbles a process of hought not uncommon among many modern astrologers. It seems to be assumed Lhat, if proof is given that the plancts (or, for that mater, the Sun and Moon) can affect things on carth, then everyding else follows, inchuding the signifitance of the Zodiacal signs-which are for most astrologers not even groups of fixed stars but merely mechanically divided strips of shy. Geophysicists, radio meteorologists, biologists, and others dain to have comelated various terrestrial phenomena (such as electromagnetic storms) with goings on in the solar system. But, assuming these clams are correct, it still seems rather a long jump to the casting and interpretation of horoscopes.

Before leaving Morrish it is worth noting that, unlike the anciens who atomatically thought of astrology as a science (and unlike those modern astrologers who lay such stress on observation, experiment, and statistics), Morrish fatly contrasts "science" (as something "strictly inductive") with astrology (which


First Batch

120 Married Pairs

| Moon | d | Sun | 10.0\% |
| :---: | :---: | :---: | :---: |
| Asc. | c | Venus | 9.4\% |
| Moon | $\square$ | Asc. | 7.7\% |
| Moon | 0 | Moon | $7.2 \%$ |
| Moon | 8 | Sun | 7.2\% |
| Mars | $\approx$ | Moon | 7.2\% |
| Venus | 8 | Moon | 7.2 |
| Mars | 0 | Mars | 7.2\% |
| Mars | 6 | Asc. | $6.6 \%$ |
| Sun | d | Mars | $6.6 \%$ |
| Verus | d | Desc. | 6.9 |
| Venus | d | Asc. | $6.1 \%$ |
| Mars | o | Desc. | $6.1 \%$ |
| Sur | ${ }_{0}$ | Asc. | $6.1 \%$ |

deals with "universals"). This was to be expected (rom this theosophical background: In a chapter entited "Shadows of Changes in World Thought" he likes to think that he can perceive a swing toward religion. He notes with approval that there is a rapid change going on today from the ethical mode to the assthetic. The high priests of science were wrong, he proclaims, but so were the high priests of religion. So open the door and let the yogi come in-the yogi who is atvare of "the Universal Integrative Factor which tums out to be ONESELF," And Morrish's yogi is, of course, just another name for the astrologer. Tell that to Ptolemy or Firmicus Maternus or Albertus Magnus or even William Lilly!

As regards religion, ingrid Lind has asked "whether it is possible to believe in astrology and still have a religion." (This, as must have emerged in our historical chapters, is not a new question.) Her answer is that she finds "nothing in it, if taken at a high enough leat [italics mine j. that is incompatible with religion." She falls back on the traditional unity of the world and interdependence of parts. "Is it fantastic," she asks, "to conceive of Gol. or at any rate of the Solar Logos, as emhodying His miverse, with the Sun at His heart and the Planets, including Earth, as vital organs of His heing?" Sill one is tempted to ask: What about Pascal's interstellar spaces? And is the rest of our own galaxy Godless? (Not to mention all those other never-to-be-numbered galaxies.)

Still. many modern astrologers would prohably agree with Ingrid Lind that their art has not only a moral but a religions justification. American astrology, al least since the heginning of the theosephical movement, certainly seems to lave had a bias in favor of the mustical rather than the scientific. There was,

Second Batch
220 Married Pars

| Moon | $d$ | Moon | 10.9\% |
| :---: | :---: | :---: | :---: |
| Mars | 8 | Venus | 7.7\% |
| Venus | $d$ | Moon | 7.20 |
| Moun | ह | Sur | 6.8\% |
| Moon | 8 | Mars | 6.8\% |
| Desc. | 0 | Mars | 6.8\% |
| Desc. | $d$ | Venus | $6.3 \%$ |
| Moon | 5 | Venus | 6.3\% |
| Venus | 6 | Venus | 6.3\% |
| Sun | F | Mars | 5.9\% |
| Venus | 6 | Dese. | 5.4\% |
| Venus | d | Mars | 5.4\% |
| Sum | $\dot{0}$ | Moon | 5.4\% |
| Sun | 0 | Sun | 5.4\% |

Above left, a table setting out the various astrological aspects considered by Jung in his analysis of the horoscopes of 400 married couples. The couples were divided into two groups of 180 and 220 : The middle iwo tables list the results yielded by each batch of horoscopes: the last table combines the figures of both. Jung points out that the aspect radimonally most connected with marriage - a conjunction between Sun and Moon-occurred most ofien in Table 1 and next mosi often in Table 3. As a famous instance of this aspect. Jung cites the horoscopes of Goethe and his mistress Christiane Vulpius (sketched by Goethe, right).

Both Batches
400 Marned Pains

| Moon | Moon | $9.2 \%$ |
| :--- | :--- | :--- | :--- |
| Moon | Sun | $7.0 \%$ |
| Moon | Sun | $7.0 \%$ |
| Mars | Mars | $6.2 \%$ |
| Desc | Venus | $6.2 \%$ |
| Moon | Mars | $6.2 \%$ |
| Mars | Monn | $6.0 \%$ |
| Mars | Venus | $5.7 \%$ |
| Muon | Aso | $5.7 \%$ |
| Venus | Dese. | $57 \%$ |
| Venus | Moon | $5.5 \%$ |
| Besc. | Mars | $5.2 \%$ |
| Asc. | Venus | $52 \%$ |
| Sun | Mars | $5.2 \%$ |




A crowded gathering of delegates to a
convention held in 1950 by the American
Federation of Astrologers. Federation
members (like those of the British Faculty of
Astrological Studies) must pass examinations and subscribe to a code of ethics.
for instance, Max Heindel, astrologer and founder of the Rosicrucian Fellowship in San Francisco. And today there is the Presbyterian minister Marc Edmund Jones who issues mimeographed lessons on astrology. As long ago as 1922 Jones founded the "Sabian Society," borrowing the name from an ancient mystical brotherhood in Baghdad. (Some of his "Sabian Symbols" were displayed in Chapter 1.) In 1925 he published in Los Angeles his Key Truths of Occult Philosophy: The first key truth is that "Time is Illusion" and the second that "Space is Relationship."

Belonging to the same American school as Jones is Dane Rudhyar; both have contributed to the quarterly astrological magazine In Search. For Rudhyar the aim of astrology is a high one : "to transform chaotic human nature into a microcosm." Like Krafft in Europe, he would like to be rid of "European 'classical' astrology" as being "a spiritually lifeless rebirth of Greco-Latin intellectualism." In his best-known book, The Astrology of Personality, Rudhyar emphasizes that "Wholeness" is all, a target to be achieved not through the analytical mind but through intuition. Intuition leads to "functional coherency." Rudhyar is another modern astrologer who pays attention to modern (particularly Jungian) psychology. Astrology is the male element (that which gives the formula) while psychology is the female element (that which gives the substantial contents).

True to the theosophical tradition, Rudhyar calls for a "creative aristocracy," being influenced here by his American predecessor Alice Bailey, who had proposed a "New Group of World Servers." He is much concerned with "group personalities" and likes to formulate things in triads-for example, "individual," "collective," "creative." Thus he distinguishes three types of astrology: First, the astrology thought of in terms of the axial motion of the earth (which concerns the individual and constitutes natal and horary astrology); second, the type thought of in terms of the earth's orbit around the sun (this is collective and constitutes natural or mundane astrology); third, there is occult astrology (which is creative). Rudhyar, who also flirts with such things as the number symbolism of the Great Pyramid, would appear to hope that astrology will one day take over from religion.

Whether they make any mystical claims or not, whether they welcome or eschew occult studies, all serious modern astrologers regard themselves as useful members of society. There is a constant lament that universities no longer offer degrees in astrology (as they did in the Middle Ages). But it is interesting that not all universities in the world reluse to acknowledge astrology's existence. Recently one of India's best-known astrologers-Prof. B. V. Raman, scholar and editor of an astrological magazine-gave a series of lectures that prompted the Chancellor of Mysore University to advocate (publicly) the founding of "faculties for astronomical and astrological studies" in Indian universities.

And in 1960 one of the most eminent of America's universities-Harvard itself (specifically, Radcliffe College, an offshoot of Harvard)—permitted a
woman student to present a thesis on astrology for her B.A. degree. The student, Marcia Moore, called her thesis "Astrology Today-a Socio-Psychological Survey." Part One of this scrupulous and detailed report summarizes the history of astrology and examines it in relation to modern science-particularly psychology. In his foreword; Charles A. Jayne Jr. (editor of In Search) emphasizes the vital distinction between what he calls "the gypsy and fortune-telling element, and those whose interest in astrology is to exploit it commercially, on the one hand, and the quite different element, on the other hand, those for whom it is a serious study."

The second part of the thesis comprises the results obtained from a questionnaire (compiled by a panel that included such big astrological names as Margaret Hone and Marc Edmund Jones) that was designed to discover the collective attitudes and ideas of those most concerned with the validity and practice of astrology-a sort of group analysis. This analysis revealed that only about 20 per cent admitted to earming any income from astrology. The questionnaire was sent out to 900 subscribers to In Scarch-mostly members of the American Federation of Astrologers, a highly respectable body with its own code of ethics. (Of the probable 100 or so astrological societies that flourish in America, 25 are affiliated to the A.F.A.)

The magazine In Search first appeared in New York in the spring of 1958 and was hailed by astrologers overseas, both in Europe and India. In the first number its editor wrote an article entitled "Toward a New Astrology" in which he suggested that the new astrologer has to reckon with "at least eighteen unknown planets." This is beating the German scientific astrologers at their own game; it looks as if American astrologers are now serious contenders for the heavyweight title. Among others there is Carl Payne Tobey, founder and director of the Institute of Abstract Science (its headquarters are in Arizona) where astrology is taught as "a branch of mathematics." (According to Mr. Tobey himself, his interest in astrology started in the 1920s, when he had lost money in the Florida boom but learned from an acquaintance that "only astrology could explain these things.")

Throughout the world, various kinds of astrological institutes, groups, societies, etc., have been formed to advance the serious study of astrology. Many such organizations offer academic facilities (often in the form of correspondence courses) to would-be astrologers. In London the Faculty of Astrological Studies (founded in 1948, and affiliated with the Astrological Lodge) sets its students examinations: After one year of study you can get a Certificate, after two years a Diploma. If you get a Diploma you have the right to put after your name the letters "D.F. Astrol.S."

While on the subject of serious astrology, it ought to be mentioned that, like the American Federation of Astrologers, the London Faculty of Astrological Studies has a printed code of ethics that is largely intended to counteract any hint of charlatanism attaching to its name. Any student attached to the faculty is


Astrology-always a rich source of allegory and symbolism-provided the British choreographer Frederick Ashton with the theme of the ballet The Horoscope (composed by Consiant Lambert and first produced in 1938). The ballet tells the story of iwo lovers (right) who are separated by the contrasting personalities of their Sun-signs Leo and Virgo, but who are finally reconciled by the efforts of Gemini and the Moon (above).

bound by this code to abide by the following rules:
"(a) I will undertake no natal work unless the time and place of birth are stated with reasonable accuracy, or if these are not available, I will explain clearly and unequivocally that any work supplied in such circumstances can only be regarded as inadequate and general.
"(b) In all professional work I will charge a fee commensurate with the dignity of astrological science, except in cases wherein the inquirer, being a genuine seeker after help and not impelled by idle curiosity, is unable to make a payment. In such instances I will give information and advice gratuitously. "(c) I will in every case make an original and individual study of the case before me and will not use any form of reduplication, nor will I use in my work extracts from others' writings without due acknowledgment.
"(d) In work stated to be astrological I will not insert anything that is not founded upon true astrological science. Should I desire to impart advice for [or?] information derived from other sources I will write this upon a separate sheet with an express statement that it is not based upon Astrology. "(e) I agree to respect in the strictest manner all confidences reposed in me, unless my duty as a loyal and law-abiding citizen of my country compels me to act otherwise.
"( f$)$ I will use discretion in making any public statements regarding political matters or persons prominent in public life, and will avoid all such as are contrary to good taste and the practice of a decent reticence.
"(g) I undertake to make no improper or unethical use of the Diploma and my status as a Holder thereof and a Member of the Faculty; and as far as in me lies I will conduct all professional astrological work, should I be engaged therein, in accordance with high professional standards.
"(h) I will hold for the general good and not for my private use or advantage any discoveries that I may make or conclusions that I may reach, save only such as might, if divulged in public, conduce to results undesirable in the general interest."
On the other side of the astrological coin, there are a great many practitioners of the ancient art whose interests lie elsewhere than serious scholarship. These are the working professionals: The astrologers who cast horoscopes for clients, write or compile columns in newspapers and magazines, and so on. Of course, this does not mean that there are two distinct camps of "serious" and "popular" astrologers. There are merely different levels, ranging from the academic (who may have a few private clients) to the semi-charlatan who may not subscribe to any code of ethics and who may very likely make a lot of money by selling largely prefabricated horoscopes. (In countries like Britain or America, however, where astrological societies keep an eye out for quackery, clients can be fairly sure that a member of such a society is a reliable practitioner.)

It has been estimated that in the U.S.A. there are over 5000 working astrologers, who cater for about $10,000,000$ customers. The charge in America for
an individual horoscope can often get as high as $\$ 100$; in Britain the average fee is about $£ 10(\$ 28)$ though it can be as low as $£ 2$ or as high as $£ 50$. Their clients come from all walks of life: from young girls in search of romance to politicians and financiers. Thus there is little doubt that astrology today is very much alive (perhaps more alive than ever before) and on a popular level as well as a serious one-even if to most people it merely means a surreptitious glance at a horoscope column in the newspaper.

Newspaper horoscopes are astrology's most obvious medium in the modern world. Almost every major popular newspaper in America and Britain features an astrological column, as do many big newspapers in Europe. Even in Belgium, where astrology suffered something of an eclipse immediately after the war, half the daily newspapers run a "What the Stars Say" column. And, apart from the large numbers of magazines devoted exclusively to astrology (in the U.S.A. the most popular, Horoscope, has a monthly circulation of 170,000 ), there are innum-

Ingrid Lind, one of Britain's top astrologers and vice-principal of the London Faculty of Astrological Studies, signs diplomas watched by a fellow tutor. Diplomas are awarded by the Faculty to students who successfully complete a two-year course.

erable periodicals that run a regular horoscope feature. These are usually women's magazines, though evidence shows that men read them too.

Perhaps the best known of these newspaper astrologers is Italy's Francesco Waldner, who produces a syndicated horoscope column that appears in Britain, Italy, and France. Indeed, his feature in the French magazine Elle proved so popular that the magazine opened a special horoscope bureau for answering personal questions. And Elle (which, incidentally, is read by over half the French adult population) lately ran a feature on the kind of clothes that should be worm by those born under the various Zodiac signs.

As a further sign of astrology's prominence in the 1960 s, it should be noticed that advertising people-those knowledgeable takers of the public pulse-often use astrological motifs as cye-catching gimmicks for advertisements. On the assumption, apparently, that the average consumer knows his way around the Zodiac, astrology has been used to sell anything from pre-shrunk shirts to alcoholic drinks. A recent example is a mail-order advertisement in a British women's magazine for a Paris perfume that comes complete with your personal horoscope.

Astrology has also been used in political propaganda, as in the case of a leaflet that was dropped by the French into Austria during World War II. This two-page pamphlet contained stock definitions of Zodiac signs and their effects on individuals; the propagandist part, held back till the last, consisted of the following jingle (entited "Austrian Groan") bewailing the plight of Austria under the oppression of the Third Reich :

Under the banner white and red, We still had plenty of butter and bread, Under the Social Democrats
We had lots of roast pork for our lads.
But under your government with Goebbels and Goering,
We only have potatoes and herring.
The Chancellor without spouse,
No bread in the baker's house,
No sow in the butcher's shop:
That's the latest command of the Reich.
Today, it seems, you can hardly get away from astrology. Israel, for instance, has issued stamps bearing the signs of the Zodiac; and there is an astrological

> Many of the institutes and colleges that treat astrology as a serious study hold examinations in order to qualify candidates to practice professionally. Far right, the certificate of proficiency granted by the American Federation of Astrologers; above right, a Belgian certificate issued to students of "scientific astrology"; right, the diploma of the London Faculty of Astrological Studies.

## INSTITUT CENTRAL BELGE DE RECHERCHES ASTRO-DYNAMIOUES



Ninus athestons gre M
demeurant à
\& suhi ave

Drwarber. he


Faclety of astrological Studies


## DIPLOMA

has becn 2 uanded by the Factity of Astrolental Srudies so $\qquad$
Who has satsfiad the Examiners in the suhyects set forth in the syllatus tior the FINfiL EXAMIN. ATION held 10

Februanty 1064



booth in a large Paris department store that gives off-the-cuff predictions to customers.

The different levels of astrology today-from very serious to very popularare usually well represented at the conventions and conferences that astrologers seem fond of holding. The "International Congress of Astro-Science" (which was held in California from August 29 to September 3, 1963, and which was organized by Dr. Adrian M. Zeigler, President of Astrologers International Ltd.) featured just such a range of interests, from the highly academic to the more light-hearted. On the one hand, there were discussions of astrology and handwriting (or grapho-analysis), of astrology and criminology, and of meteorological astrology; on the other hand, there were talks on subjects like "The Funniest Virgo in Town," and visitors were treated to a "Zodiacal fashion show" and an astrological dance revue.

By way of contrast to this sketch of popular astrology in the Western world today, we can look at its equivalent in Japan: the street-level fortune telling that is carried on from pavement booths in Tokyo. The pavement astrologers,


The familiar figures of the 12 Zodiac signs reappear in an up-to-date form as decoration on Israeli postage stamps (above) and on a British greetings telegram (above left).


who are known as Ekisha, set up their booths at night in shop doorways to attract strollers. Dressed in black kimonos, the Ekisha sit waiting with their books of astrological tables. Forecasts are made from the customer's date and hour of birh, which is then related to the appropriate sign of the Japanese Zodiac. (Incidentally, the Zodiac used by the Japanese has no resemblance to the Western Zodiac. Each of the 12 signs corresponds exactly to one calendar month and all are named after animals: March, for example, falls under the Tiger, and May under the Dragon.) This forecast is tallied with the lines on the customer's palm (read with the aid of a large magnifying glass). The chances of the prediction's being fulfilled are determined by shaking a number of sticks in a shaker, removing a handful, and then counting the remainder. (Different numbers imply different degrees of accuracy.) It is said that most Ekisha are too busy to close their booths much before dawn.

Apparently, in Japan as in the West, demand has created supply. That is, astrology seems to be "what the public wants"; and so they get it. And they get it in a wide variety of forms and, sometimes, from some quite unexpected quarters. Perhaps to end this chapter, we may offer two recent examples-one from India and the other from Britain-that demonstrate how astrology is liable to crop up even today in the most remarkable and unexpected places.

The universal appeal of the Zodiac (as well as its decorative value) has often been exploited as a sales device. Here the signs are featured by two British firms in advertisements for washing machines (left) and non-shrink cottons (right) Below, a display of Zodiac jewelry in a Paris department store.

## YOUR HOROSCOPE

The Bull
April 21 - May 22


Taurus subjects can look forward in complete confidence. A year free from the worries of shrinkage is forecast, under the guiding star of "Sanforized". Familiar laces will be unusually welcome. "Sanforized" will continue to give a strong helping hand with cottons.
"Sanforized" Service
20 St. Am"s Square, Manchester 2. bla $8489 / 2916$




The popular Japanese pavement fortune tellers known as Ekisha usually combine astrology with palmistry. Left, an Ekisha examining a client's palm with a magnifying glass; above, he holds the sticks that are used to assess a forecast's chances of fulfillment. Astrologers are regularly consulted in Thailand as well as in Japan: The Thai boxer Pone Kingpetch (left of picture, right) has publicly stated his reluctance to fight on days that are astrologically inauspicious.




Astrology often makes news, even in the nonspecialist press. Above, the British astrologer Edward Whitman, whose comments on the end of the world that was forecast by Indian astrologers for February 5, 1962. were published in a top Sunday newspaper. Left, the cover of a brochure produced for the widely publicized International Congress of Astro-Science held in California in September 1963. Right, a cartoon from a British newspaper that followed a magistrate's suggestion that horoscopes should be cast and interpreted for "juvenile delinquents."

The first was mentioned in Chapter 1: the end of the world on February 5, 1962, which caused such a stir among the wise men of India. The writer of an article in the British Sunday Times for February 4 had taken the trouble to interview a number of people on this prospect. Among others he interviewed Edward Whitman, Secretary of the Federation of British Astrologers. Mr. Whitman was not worried about the morrow: He explained that the Hindus use a fixed Zodiac whereas he, like all good Westerners, uses a moving Zodiac. Moral (apparently) : The world may end for them, but not for us. Over in the U.S.A., however, 22 members of a society called "Understanding Inc." believed the Hindu astrologers and retreated to a small town in the Arizona mountains that they considered, for some reason, to be one place fated to survive the general catastrophe.

Another story reported in the British papers (in December 1962) was that of Charles Legh Shuldham Cornwall-Legh, chairman of the Cheshire Police Authority, and chairman of the Magistrates' Bench at Lymm, Cheshire. This important person came out into the open as saying: "I look forward to the time when it will be standard practice to have available for magistrates an interpreted horoscope of every child charged with a serious offence."

Just how much Mr. Cornwall-Legh was asking will be seen in the next chapter. To cast the horoscope of a juvenile delinquent, or anyone else, it would be necessary to know the exact time of his birth (how many people do?). To interpret a horoscope, as will be seen, requires a great deal of shill and a good deal of time and trouble.


## 8 The anatomy of the horoscope

Earlier in this book we looked at some of the basic constituents of a horoscope: the planets, the signs of the Zodiac, and the houses. Some knowledge of these things was necessary before one could move with any sureness through the centuries of astrology's history. Now, having brought that story up to date, we must change our ground and go back to looking at astrological fundamentals -in other words, at the horoscope itself, which is as basic to astrology as, say, the plan of a building is to an architect.

Most of the more technical details in the following pages have been supplied by a very reliable authority on the subject; but, as far as traditional astrology is concerned, there are many textbooks in which the same details are available (though sometimes in an over-simplified or, more often, an over-complicated form). Apart from house division, there is little argument about what the astrologer does when he is casting a horoscope. And in fact anyone can learn to erect a "natal chart" in an hour or two. Just as anyone can learn to draw a building plan. But this doesn't mean he can build the building; or, if he can, that it will stay standing. In the same way, it is the interpretation of the horoscope that separates the astrological men from the boys-and that causes the arguments to rage.

But we are first concerned with casting or erecting the chart. To refresh the reader's memory briefly: A horoscope consists of a geocentric map of the solar


A 17th-century Duich map of astrology's earth-ceniered universe encircled by the Zodiac band-the system inat appears in diagrammatic form on every horoscope chart. The various lines connecting the 12 Zodiac signs illustrate the planetäry aspects The red lines link four planets in "square": the light blue lines, six planers in "sextile" other lines forming equilateral riangles join three planets in "trine."
system at a given moment of time. On this map the positions of the Sun, Moon, and the other eight planets are calculated in relation to the signs of the Zodiac. The Zodiac is an imaginary band of sky representing the Sun's annual path through the fixed stars. (The Sun's apparent "movement" along this path is, of course, produced by the earth's own annual orbit around the Sun.) With the exception of Pluto, all the planets also appear to move around the earth within about $8^{\circ}$ of the center of this band of sky.

Most modern astrologers are primarily interested in "natal" or "genethliacal" horoscopy-that is, they are interested in the individual horoscope, which is erected for a specific time (if possible, to the nearest minute) and takes into account the exact geographical position (latitude and longitude) of the individual's birthplace. (The individual for whom a horoscope is cast is usually called the "native.") These, then, are the essential data that the astrologer must have to cast a horoscope: date of birth, accurate time of birth, place of birth. With these, the astrologer sets out to compute the native's ascendant and its related medium coeli (м.c. or mid-heaven).

He makes his computations with the aid of two reference books (which are not difficult to find in libraries or bookshops). One is called an ephemeris (we have inherited the name and the thing from the Greeks), which tells you what was where in the solar system at any particular time. The other book is called a table of houses by which the astrologer makes corrections with regard to the position of the individual's birthplace. (Some ephemerides include tables of houses for particular latitudes.)

The astrologer's first step is to find out (from his ephemeris) what the sidereal time was at noon on the day of birth in question. Sidereal time is measured by the stars and not (like ordinary clock time) by the Sun. In a sidereal day the stars appear to have made one complete circuit of the sky; but the Sun hasn't quite completed its apparent circuit. So the sidereal day is a lew minutes (of clock time) shorter than the ordinary day. This discrepancy, known as the "acceleration on interval," must be allowed for when calculating the sidereal time at birth.

Astrology uses sidereal time (usually written as just s.t.) as a means of indicating the positions of the stars as seen at a given time and place. To put it briefly, the astrologer must translate his information (birth time and birthplace) into s.t. so that he can use his tables-since these give the positions of the slars and planets in terms of s.t. The s.t. is found by simple arithmetic.

The ephemeris obviously cannot give the s.T. that corresponds with every minute of every day: so all it gives is the corresponding s.t. to noon on the day in question. Then the astrologer must work out the s.T. of the moment of birth. He works this out by adding the necessary number of hours and minutes for births after noon, and subtracting them for births before noon. For example:

Assume that the birth date in question is July 5, 1960, and that the time of birth is 7.20 p.m. (We will also assume, to avoid questions of longitude for
the moment, that this is the birth date of someone born near the meridian of Greenwich. Thus that time of birth-7.20 p.M.-will be in Greenwich Mean Time, or с.м.т.) The ephemeris tells us that, on that date, the s.t. at noon was six hours, 53 minutes, and 56 seconds. Now, since the time of the birth in question was after noon, to find the s.t. for the precise moment of birth we must add seven hours 20 minutes (known as the "interval") to the s.t. at noon. We must also allow for the "acceleration on interval" by adding 10 seconds for each hour-which works out at one minute 13 seconds. We get the following total :

$$
\begin{array}{r}
6^{\mathrm{h}} 53^{\mathrm{m}} 56^{\mathrm{s}} \\
+7^{\mathrm{b}} 20^{\mathrm{m}} 0^{\mathrm{a}} \\
+\quad 1 \quad 1^{\mathrm{m}} 13^{\mathrm{s}} \\
\hline 14^{\mathrm{h}} 15^{\mathrm{m}} \quad 9^{\mathrm{s}}
\end{array}
$$

Most of the commonly used ephemerides use G.m.t. as a standard. So, for natives not born on the Greenwich meridian, the time of birth must be converted into с.м.т. before the above addition can be performed. For instance, Central European Time is one hour fast by comparison with g.m.t. while Eastern Standard Time (U.S.A.) is five hours slow. So for a birth at New York at 9 p.m. the g.m.t. is 4 p.m.; for a birth at Munich at 1 p.m. с.e.t., the equivalent с.м.т. is noon.

Now we have established the s.T. that corresponds to the time of birth in Greenwich time. We must next convert this into local s.t. for people born in places other than on the Greenwich meridian. This involves longitude: We must

A world map shows the earth divided into 24 different time zones. (The international date line marks the point where one weekday becomes the next.) The figures at the bottom show the time in each zone corresponding to noon in Greenwich Mean Time.


An astrologer casting a horoscope : His equipment consists of a protractor to plot the exact positions of the various elements of the horoscope; an ephemeris (a book containing the tables necessary for his calculations) ; and a blank horoscope chart on which he writes the specific details of the "native's" horoscope. Here he is writing in the planet Venus (having already filled in the ascendant, Zodiac signs, and M.C.).

convert degrees and minutes of longitude (east or west of the Greenwich meridian) into minutes and seconds of time. This, too, is a simple process. Longitude is transformed into time simply by multiplying by four. For instance :

Vienna is $16^{\circ} 22^{\prime} 54^{\prime \prime}$ east of Greenwich. Multiply this by four, and the result is 65 minutes 32 seconds (of time). Now, because Vienna is east of Greenwich, this $65^{\mathrm{m}} 32^{\mathrm{s}}$ would be added to the s.t. at Greenwich. (Subtract for all points west.)

Here we might pause and review these manipulations of time. The astrologer first takes the moment of birth as it is expressed in local time (Central European, Eastern Standard, or whatever) and translates it into Greenwich Mean Time. Then, using the ephemeris, he translates that into sidereal time for Greenwich. Finally, using longitude, he arrives at the moment of birth expressed in sidereal time for the birthplace.

Next, latitude (north or south of the equator) comes in. The astrologer looks into his tables of houses and finds that, at the already-established sidereal time of birth and at the given latitude of the birthplace, a certain degree of the Zodiac was "rising" over the eastern horizon. This is the ascendant. And now the job of calculating the horoscope is nearly done.
(The astrologer must know the exact latitude-for the same sidereal time will give different ascendants for different latitudes. For example, an s.t. of $13^{\mathrm{h}} 2^{\mathrm{m}}$ $40^{\circ}$ gives an ascendant of $20^{\circ} 19^{\circ}$ Sagittarius at the latitude of $46^{\circ}$ North, but gives an ascendant of $10^{\circ} 26^{\prime}$ Sagittarius at $56^{\circ}$ North.)

When the ascendant has been calculated, it is marked on the blank circle of the horoscope chart. A line is drawn connecting the degree of the ascendant with a point exactly opposite on the other side of the chart-which is the descendant. The table of houses also gives the related mid-heaven or m.c., and so the astrologer draws a line bisecting the ascendant-descendant line connecting the m.c. and the imum coeli. And there he has the four angles of the chart and its quadrants.

During any period of 24 hours there are 360 possible ascendants, each with its related mid-heaven. A different (succeeding) degree of the ecliptic (and therefore of the Zodiac) "rises" above the horizon every four minutes. So if Smith was born five minutes after Jones (even if they were both born in the same place), Smith will have a different degree of the Zodiac for his ascendant. And if Jones's ascendant was, say, $30^{\circ}$ Scorpio, Smith will also have a different ascendant sign- $1^{\circ}$ Sagittarius.

Unfortunately, with the vast majority of people it is not so easy to establish the ascendant and mid-heaven with the proper accuracy. You are lucky if the ascendant is accurate to within even three or four degrees-i.e., 12 to 16 minutes of time. This might make a very serious difference, since the sign on the ascendant may have changed in that time; and, as we have seen, adjacent signs (like Aries and Taurus) tend to be very unlike each other. Both ancient and modern astrologers have stressed the deplorable results of such vagueness about the time of one's birth. But the same vagueness does, of course, supply the astrologer with a ready-made excuse for an inaccurate prediction.

Assuming that the ascendant and mid-heaven have been accurately established, the astrologer then proceeds to fill in the so-called "house" boundaries. (The data for these is obtained from tables of houses for the latitude in question.) Commencing at the ascendant, which is the "cusp" or beginning of the first house, the horoscope is then divided into 12 sectors or houses.

Incidentally, very few astrologers understand the various mathematical theories of house division, since an expert knowledge of spherical trigonometry is required. Most people use Placidus tables (named after Placidus de Tito, the 17 th-century Italian astronomer and astrologer), not because they are necessarily the best but because they are most readily available. Regiomontanus and Campanus tables can also be found, as well as the new Geburtsorthäuser (birthplace) tables recently calculated by Dr. W. A. Koch of Germany, who is one of the world's greatest experts in this very difficult field. But in all the latter cases the degree values of the intermediate cusps (i.e., for houses $2,3,5,6,8$, 9,11 , and 12) will be different from the Placidean cusps. Thus four different astrologers, each using a different house division system, will produce four different horoscopes as far as the intermediate houses are concerned, although the ascendant and mid-heaven will be the same in each case.

Enemies of astrology like the late Robert Eisler have found in these disagreements about house division some very nice fuel for their polemics. Eisler

| $t$ |  |  |  |  |  | 3 Iat. | 0 Dec. | MIDNIGHT |  |  | $\Psi$Long. | 药 <br> Long. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{gathered} \text { © } \\ \text { Ther. } \end{gathered}$ | j Long. |  |  |  |  |  |  |  |  |
| M | W |  | $\stackrel{6}{\text { dong }}$ |  |  |  |  | VLong. | bDec. |  |  |  |  |  |
| M | W |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 23 N6 | $1=4314$ | 1 N13 | 0) $\times 26$ | $8 \bumpeq 11$ | 71 | 1538 | 6m, 96 |  |  |  |
|  |  | 638 642 | 100.17 10 | $\begin{array}{ll}-3 & \\ 3 & 1\end{array}$ | 148448 | - 18 | 3842 | $21 \quad 25$ | (5) 5 | 540 | 6 P26 | 18 | 54 | 15 |
|  | \% | 642 646 | 11 $11 \begin{array}{lll}10 & 3 \\ 12 & 11\end{array}$ | -30 | 14 | $3 \quad 17$ | 746 | 5 m ( 5 5! | 99 | $9 \quad 43$ | $6 \quad 25$ | 18 | 78 | 15 |
| 4 | \% | $\begin{array}{llll}6 & 49 & 59\end{array}$ | 1282932 |  | $12 \square 7$ | 47 | 113 | 19 15 21 | 113 | 315 | 1505 | 19 | 1 | 15 |
|  | Tu | 6425 | 13 96 <br> 6  |  | 1263028 |  | 1447 | $3 \pm 52$ | 0116 |  |  |  |  |  |

How to cast the horoscope of a "native" born in London on July 5.1960. at 7.20 F.M. The first step is to calculate the sidereal time at birth. The time of birth and the "acceleration on interval" (which is worked out as explained on p. 245) are added to the S.T. for noon on July 5 (found on Table 1). The result of this addition (far right) is the S.T. at birth. The next step: The S.T. at birth is related to Table II. which gives $0^{\circ} 29^{\prime}$ Capricorn as the ascendant and $6^{*}$ Scorpio as the M.C. These are plotted on the horoscope and the other Zodiac signs written in.

Next, the positions of the faster-moving planets must be found-for example. Venus. Find the motion of Venus on Table lll ( ${ }^{\prime \prime} 14^{\prime}$ ). Then find on Table IV the log of $1^{\prime} 14^{\prime}$ (12891) and the $\log$ of the interval of 7 h 20 m (5149): add these and convert the total (18040) into degrees (23') in the way explained on p. 250. Add this figure to the position of Venus at noon, found on Table 1-16"59' in Cancerand you have Venus's position at the birth time ( $17^{\prime} 22^{\prime}$ Cancer). The process is repeated for the other fast-moving planets. The positions of the slower planets (in red on Table!) are transferred straight onto the chart. (The position of Pluto is found on Table V.) The charl is now complete.

II TABLES OF HOUSES FOR LONDON

| Sidereal Timat. | $\begin{aligned} & 10 \\ & 14 \end{aligned}$ | 111 | 12 | Ascen | 2 | 3 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| H. 31. 5. | c | c | - | - ' | - |  |
| 135137 | 0 | 29 | 10 | $25 \quad 20$ | 10 | 27 |
| 135.597 | 1 | $\underline{3}$ | 11 | 2010 | 11 | 25 |
| $1: 5017$ | 2 | 24 | 11 | 27 | 12 | $\uparrow$ |
| 1438 | 3 | $\because 5$ | 19 | $27 \quad 53$ | 14 | 1 |
| 1465 | 4 | 28 | 13 | $28 \quad 45$ | 15 | 2 |
| 181051 | 5 | 10 | 14 | 2936 | 16 | 4 |
| 14144 | $\square$ | 27 | 15 | i) 1314 | 18 | 5 |
| 141837 |  | $\stackrel{3}{3}$ | 15 | 123 | 19 | 6 |
| 142231 | 8 | : 20 | 16 | 218 | 20 | 8 |
| 142845 | 0 | $t$ | 17 | 314 | 22 | 0 |


| PROPORTIONAL LOGARITHMS FOR FINDING THE PLANETS' PLACES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\dot{E}$ | DEGREES OR HOURS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | E' |
|  | 0 | 1 | 2 | 3 | 4 | 5 | \| 6 | 77 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | $\Sigma$ |
|  | 3.1584 | 1.3802 | 1.07 | 9031 | 7781 | 6812 | 6021 | 5351 | 4771 | 4260 | 3802 | 3388 | 3010 | 2663 | 41 | 2041 | 0 |
|  | 3.1584 | 1.3730 | 1.075 | 9007 | 7763 | 6798 | 6009 | 5341 | 4762 | 4252 | 3795 | 3382 | 3004 | 2657 | 2336 | 2036 | 1 |
|  | 2,8573 | 1,3660 | 1.0720 | 983 | 7745 | e784 | 5997 | 5330 | 4753 | 4244 | 3788 | 3375 | 2998 | 2652 | 2330 | 2032 | 2 |
|  | 2.6812 | 1.3590 | 1.0685 | 8959 | 7728 | 6769 | 5985 | 5320 | 4744 | 4236 | 3789 | 3368 | 2992 | 2646 | 2325 | 2027 | 3 |
|  | 2.5563 | 1.3522 | 1.0649 | 8935 | 7710 | 6755 | 5973 | 5310 | 4735 | 1228 | 3773 | 3362 | 2986 | 2640 | 2320 | 2022 | 4 |
| 5 | 2.4594 | 1.3 | 1.0614 | 8912 | 7692 | 6741 | 596 | 5300 | 4726 | 4220 | 3766 | 3355 | 2980 |  | 231 | 2017 | 5 |
|  | 2.3802 | 1.3388 | 1.0580 | 8888 | 7674 | 6726 | 5949 | 5289 | 4717 | 4212 | 3759 | 3349 | 2974 | 2629 | 2310 | 2012 | 6 |
|  | 12.3133 | 1.3323 | 1.0546 | E865 | 7657 | 6712 | 5937 | 5279 | 4708 | 4204 | 3752 | 3342 | 2968 | 2624 | 2305 | 2008 | 7 |
|  | 2.2553 | 1.3258 | 1.0511 | 8842 | 7639 | 6698 | 5925 | 52 59 | 4699 | 4196 | ,3745 | 3336 | 2962 | 261 | 2300 | 2003 | 8 |
| 9 | 2.2041 | 1.3195 | 1.0478 | 8819 | 7622 | 6684 | 5913 | 5259 | 4690 | 4188 | 3737 | 3329 |  | 2613 | 2295 | 1998 | - |
|  | 2.1564 | 1.313 | 1.0 |  |  | 46670 | 5902 | 5249 | 4682 | 4180 | 37 | 3323 | 2950 | 2607 | 2289 | 1993 | 0 |
| 11 | 2.1170 | 1.3071 | 1.0411 | 8773 | 7587 | 16656 | 5890 | 5239 | 4673 | 4172 | 3723 | \|3316 | 2944 | 2602 | 2284 | 1989 | 1 |
| 12 | 2.0792 | 1.3010 | 1.0378 | 8751 | 7570 | 6642 | 5878 | 5229 | 4664 | 4164 | 3716 | 3310 | 2938 | 2596 | 2279 | 984 | 2 |
|  | 2.0444 | 1.2950 | 1.0345 | 8728 | 7552 | 6628 | 5866 | 5219 | 4655 | 4156 | 3709 | 3303 | 2933 | 2591 | 2274 | 1979 | 3 |
| 14 | 2.0122 | 1.2891 | 1.0313 | 8706 | 7535 | 6614 | 5855 | 5209 | 4646 | 4148 | 3702 | 3297 | 2927 | 2585 |  |  | 4 |
| 15 | 1.9823 | 1.2833 | 1.0280 | 8683 | 7518 | 6600 | 5843 | 5199 | 4638 | 4141 | 3695 | 329 |  | 2580 | 2264 | 1969 | 5 |
| 16 | 1.9542 | 1.2775 | 1.0248 | 8661 | 7501 | 6537 | 5832 | 5189 | 4629 | +133 | 3688 | 3284 | 291 | 2574 | 2259 | 1965 | 6 |
| 17 | 1.9279 | 1.2719 | 1.0216 | 8639 | 7484 | 6573 | 5820 | 5179 | 4620 | 4125 | 3681 | 3278 | 2909 | 2569 | 2254 | 1960 | 7 |
| 18 | 1.9031 | 1.2663 | 1.6185 | 8617 | 7467 | 6559 | 5809 | 5169 | 4611 | 4117 | 3674 | 3271 | 2903 | 2564 | 2249 | 1955 | 8 |
| 19 | 1.8796 | 1.2607 | 1.0153 | 8595 | 7451 | 6546 | 5797 | S159 | 4603 | 4109 | 3667 | 3265 | 2897 | 2558 | 2244 |  | 9 |
| 20 | 1.8573 | 1.2553 | 1.0122 | 88573 | 7744 | 4 16532 | 5786 | 5149 | 4594 | 4102 | 3560 | 3258 | 289 | 2553 | 2239 | 946 | 20 |
| 21 | 1.8361 <br> 1.8159 | 1.2499 | 1.0091 | 8552 | 7417 | 16519 | 5774 | 15139 | - 4585 | 4094 | 3653 | 3252 | 2885 | 5254 | 2234 | 1941 | 21 |
| 23 | 1.8 | 1.2445 |  |  |  |  |  | 5129 | 4577 | 4086 | 3646 | 3246 | 2880 | 25 | 2229 | 1936 | 22 |


cate of birth
place
latitude $\quad 51^{\prime \prime} 30^{\prime}$
time of birth 19 hrs .20 mins .

| time of birth | 19 | 20 | 0 |
| :--- | ---: | ---: | ---: |
| -noon | 12 | 0 | 0 |
|  | 7 | 20 | 0 |
| interval | sidereal time | 6 | 53 |
|  | 14 | 13 | 56 |

+ acceleration on interval sidereal time at birth
motion of 9 on July $5 \quad 1^{\circ} \quad 14^{\prime}$
$\log$ of $1^{\circ} 14^{\prime}$
+constant log
position of $\bar{\circ}$ on July $5 \quad 16^{\prime \prime} \quad 59^{\circ}$ in 0
+converted result of log=
movement of 8 in $7^{\circ} 20^{\prime}$
position of at birth
$\frac{23^{\circ}}{17^{\circ} \quad 22^{\circ} \text { in } 0_{0}}$

maintains that in the ancient world the original division was into eight houses, arrived at simply by halving each quarter of the heaven. The division of 12 , he argues, has nothing to do with the divisions of the horizon "but rests originally on the division of the day into twelve hours of variable seasonal length" (italics mine).

But to get back to our horoscope: The astrologer now fills in the position of the Sun, Moon, and planets. In the case of the slower-moving planets (Saturn, Uranus, Neptune, Jupiter, and Pluto), this is a simple matter of referring to the ephemeris, finding the positions for noon on the day of birth, and transferring these straight onto the chart. But for the faster-moving planets (Venus, Mercury, the Sun and Moon), the positions must be adjusted to allow for planetary movement between noon and the time of birth. To clarify the calculations involved, refer to the sample horoscope on p. 249 and find the position of Venus.

First, since we are dealing with time after noon, we look up in the ephemeris the planet's motion at noon on the day of birth. (For before-noon time, look up the planetary motion for the previous day.) We then turn to the log tables at the back of the ephemeris and find the log of this motion; to this we add the log of seven hours 20 minutes (the interval) and convert the total back into degrees. This gives us the difference in Venus's position between noon and 7.20 p.m. We add this figure to the noon position of Venus (given in the ephemeris) and we have the position of Venus at 7.20 p.m. Incidentally, for a planet that is retrograde (marked by R in the tables), the whole process would be reversed; that is, we subtract the movement on interval from the planet's position at noon.

A word of reminder about aspects is necessary here. Obviously, among the slower-moving planets, such important aspects as conjunctions, squares, and oppositions can occur only at rare intervals. During a period of five years Saturn moves only about $60^{\circ}$, Uranus $20^{\circ}$, Neptune $10^{\circ}$, and Pluto $8^{\circ}$. But during the same five-year period the Sun will have circled the Zodiac five times ( $5 \times 360^{\circ}$


Campanus


Regiomontanus


Above, a chart showing "unequal" house division according to the system evolved by Regiomontanus. Left, a diagram of Regiomontanus's"space" system shows six of the 12 circles that represent the houses (like segments of an orange) marked off along the celestial equator (C). The houses' divisions, or cusps (which must be calculated by trigonometry), are the points on the ecliptic (B) cut by the circles. Far left, a diagram of Campanus's method of house division, which also results in their unequal size. In this case, the houses are divided along the "prime vertical"-the line joining the zenith and the nadir (A).


These diagrams show the number of degrees that each planet seems to move in a year in its apparent path around the earth. (One full orbit-like that made by the Sunconsists of $360^{\circ}$.) The enormous variation in speed between the various planets can be seen by comparing the barely perceptible movement of the slowest planet, Pluto (about $1^{\circ}$ a year), with the 13 complete orbits a year of the fastest traveler, the Moon.
$=1800^{\circ}$ ) and the Moon will have circled it about 60 times. Thus while a SaturnJupiter conjunction, for instance, will occur only once every 19,859 years, SunMoon conjunctions occur monthly, and the faster planets (including the Sun and Moon) are constantly forming new aspects with each other and with all the slower planets.

It thus follows that everybody born during a given month of any year will have four of the eight planets in very much the same positions in their horoscope charts. Again, if one ignores the Moon (which moves about $12^{\circ}$ during 24 hours and will therefore pass from one Zodiacal sign to another every two or three days), there is no marked change during the course of a week as far as the aspects are concerned, although one or more planets may have passed into a fresh sign of the Zodiac.

Here, finally, is a quick summary of the entire procedure:

1. Find out the native's date of birth, exact time of birth, and place of birth. Also the longitude and latitude of place of birth.
2. Find out from the ephemeris the sidereal time at noon (G.m.т.) for the given day of birth.
3. By simple addition or subtraction, find the equivalent s.t. for the moment of birth (making sure that the moment is expressed in G.m.t.).
4. Convert the longitude of the native's place of birth into hours, minutes, and seconds by multiplying by four.
5. Find the local s.t. for the place of birth by adding or subtracting the longitude to or from the Greenwich s.t.


air: 』 $\approx \Omega$

water: $\sigma_{0}$ 凡. $\mathcal{H}$

The majority of astrologers learn interpretation from such books. Margaret E. Hone, for instance, advises the student of astrology that he "will never become fluent and quick in interpretation until he so thoroughly grasps the nature of each planet, sign, house and aspect, that he can apply them as related in any chart, without constant reference to books." But, she adds, the beginner "needs the help of books in his work, at first."

The heavy weight of the tradition thus prevents the astrologer from bringing very much originality into his interpretative work. The meanings of the various parts of the horoscope were settled long ago; and most astrologers accept them. This acceptance can be seen in practically any set of excerpts, dealing with the same subject, from the astrological textbooks. For example, the following is a set of quotations concerning the first house of the horoscope (which begins at the point of the all-important ascendant). To lead off, here is the meaning of the first house according to John Gadbury's The Doctrine of Nativities (1658), which corresponds in most respects with similar examples from 16th- and 17thcentury French manuals:
"This House hath proper Signification of the Life of the Native; his Stature, Form and Shape; the Temperature and Accidents of the Body; the Qualities of the Minde; the Visage, its Fashion, Complexion and Colour, and all the Parts thereof . . . Sun in the first [House] makes the native honoured among his brethren . . . he will rule over others; will acquire Authority, Honour, and Dignity from Princes; he will have a great increase of Riches; he will be of long life and powerful."

Sepharial, one of the British astrological writers whom we have met before, closely follows Gadbury in his A New Manual of Astrology (1898):
"The first House denotes the body of the native, his physical condition and appearance. . . ." And further: "Sun in First House gives honour and success. A proud disposition; frank, outspoken, generous; despising cliques and coteries; independent and firm. It also gives a love of display and publicity, accompanied by high motives."

fire: $\gamma \quad \varnothing$

As well as ascribing individual qualities 10 the signs and houses, astrology also classes them into various groups, whose meanings must also be considered when a horoscope is interpreted. The medieval German paintings (above) illustrate the four "elements" of air, water, fire, and earth. The four "triplicities," each comprising three signs, are as follows: airy signs indicating "intellectual and articulate" character ; watery, "emotional and unstable" ; fiery, "ardent and keen"; earthy, "practical and cautious."

Right, a diagram representing the "quadruplicities"-a division of the signs into three groups of four: The cardinal signs are linked by the blue lines; the fixed by the red; the mutable by the black.

Right, a diagram shows the 12 houses co'ored to show their classification into angular (light blue), implying initiative: succedent (white), steadiness of purpose: cadent (dark blue), widespread activity.

earth: \& m vis


# A sample interpretation based on the horoscope on p. 249 

General view of the chart

2 The quadruplicities

3 The elements

4 Rising and setting planets

5 Position of the planets above or below the horizon

6 Planetary occupation of the four quadrants

7 The decanates

8 The Sun's position in relation to the Zodiac

9 The Moon's position in relation to the Zodiac

10 The ascendant's position in relation to the Zodiac

11 The ascendant's ruler

12 Planets in relation to the houses

No marked tendency for harmony or disharmony, though the influence of Saturn is strong (see below, 11 and 14).

These are well balanced : three planets in cardinal signs, three in mutable, and four in fixed. The slight edge toward fixed is offset by the fact that neither the ascendant nor the Sun is in the fixed quadruplicity.

There are four planets in fiery signs, three (and the ascendant) in earthy, three (and the M.C.) in watery, but none in airy. The absence of "airiness" might result in a lack of intellect, though the native is strong in commonsense ("earthy") and intuition ("watery").

Saturn in the first house and Jupiter above the horizon in the 12th (both rising) may produce a conflict between restraint and expansiveness. Sun and Venus setting indicate an orientation toward others.

More planets are above the horizon, adding to the "outward" orientation of the personality.

The accent is on the third quadrant (five planets from the seventh house to the M.C.), emphasizing the importance of the seventh, eighth, and ninth houses.

Since the ascendant is in the first decanate of Capricorn, the native's personality will be almost entirely Capricornian.

The Sun is in Cancer, which gives Cancerian qualities to the "deeper self."

The Moon is in Sagittarius, whose qualities will affect automatic reactions and manner. The strong difference between Sagittarius and Cancer will creare some deep-seated conflict.

Capricorn as the rising sign or ascendant will affect physical appearance.

Saturn, ruler of Capricorn, is in Capricorn, and in the first house, which gives the planet an immense influence in the horoscope. The native must try to overcome his excess of "Saturnine" coldness, caution, meanness, etc.

Sun. Mercury, and Venus in the seventh house help to orient the native toward others. offsetting Saturn's selfishness. Mars in the fifth gives physical energy and magnetism. Neptune in the 11 th-in conjunction with the M.C., the "career point"-lends ambition and creativity to the personality. Uranus in the eighth gives an interest in mysticism, counteracting Saturn's "heaviness."

14 Planetary aspects
Jupiter and Salurn are (as we have seen) in their own signs, increasing the strength of each. Mars in Taurus adds to sensuality.

The Sun is in conjunction with Venus, in good aspect to Mars and Neptune. and in bad aspect to Saturn. Some effects of these aspects we have seen. The Sun's good aspect to Mars adds to the strength of personality, and the Moon's good aspect to Mercury gives emotional stability. Mercury's bad aspect to Neptune might add to the tendency to escapism. Venus's bad aspects to the Moon. Saturn. Pluto, and Uranus indicate difficulties in love and marriage. Mars's good aspect to Saturn balances energy with caution. Mars's bad aspect to Uranus could mean an explosive nature under the surface.

A generation later V. E. Robson, in his A Beginner's Guide to Practical Astrology (1931), wrote:
"[The first house indicates] the Native, or subject of the Horoscope himself; his appearance, habits, characteristics, health, temperament and the general way in which he looks on the world. . . . Sun in 1st: generous, dignified, proud, ambitious, confident, boastful, fond of display, independent. Honour and success. Good vitality. Few brothers."

The modern German "cosmobiologer" Reinhold Ebertin is one of the mavericks who prefer to bring in their own interpretative meanings, breaking entirely with the traditional formulations of the Gadbury-Sepharial-Robson school. In his book The Combination of Stellar Infuences (1950) Ebertin defines the ascendant as "Personality (Environment)," adding that the individual's psychological characteristics would then depend upon the Zodiacal sign in which the ascendant happened to be. He also relates the ascendant to "reactions to the external world, the ' I ' in relation to other people, especially those in the native's environment."

But even with all the reference books at his elbow the beginner still will not find interpretation a simple process. The horoscope contains a great many factors, some quite complex, all of which (if the job is to be done properly) must be taken into consideration. To underline some "ingredients":

There are the quadruplicities-i.e., the number of planets respectively in cardinal, fixed, and mutable signs of the Zodiac. (Aries is cardinal, Taurus fixed, and Gemini mutable, and the succession runs cardinal, fixed, mutable throughout the remaining signs. An excess of planets of one "quality" is said to make the native psychologically one-sided.) And there are the triplicities-the number of planets in fiery, earthy, airy, and watery signs. (Aries is fiery, Taurus earthy, Gemini airy, Cancer watery, and so on in the fire-earth-air-water succession
throughout the remaining signs. A person with many planets in fixed and earthy signs, for instance, might be considered potentially phlegnatic.)

Also important are the number of planets in the east and west respectively (it is thought that if the majority of planets are in the western half of the chart, their effects would be especially noticeable in the second half of the native's life); and the number of planets above and below the horizon-the line joining the ascendant and descendant (planets below the horizon are considered less "effective" than those above it).

These are only a few of the separate elements of an individual horoscopequite a long way from the "if you were born with your Sun in Taurus" kind of astrology popularized by the newspapers. What is required is the ability 10 grasp and interpret all these combinations and then, from the available "evidence," to arrive at a reasonable synthesis of what it all means or is supposed to mean.

Whatever else they may have invented, the early astrologers were responsible for the first known attempt at a complete system of human typology. Nearly all astrologers classify people by their ₹odiacal types; but for one "pure" type there are many mixed, where more than one Zodiacal sign has a say in the native's constitution. Oddly enough, we are assured, the pure types are of ten quite evident and a skilled astrologer will be able to hit upon a person's Sun-sign and/or ascendant with remarkable accuracy without knowing the birth month. This can often be done on the basis of only a casual encounter and a few minutes of conversation, during which the subject will give himself away quite unconsciously.

There are "planetary" types as well: The man with the "sunny" disposition, the "lunatic," the mercurial, martial, jovial (Jupiter), and saturnine characters. The basic meaning of any planet, when it is in a giveri Zodiacal sign, will of course be modified by the interpretative meaning ascribed to that sign. And the traditional interpretations accorded to the houses (outlined briefly in Chapter 3), especially if occupied by planets, should also assist the astrologer to pinpoint a number of important factors concerning the native's "type."

As for the meanings of the aspects, there is sometimes a lack of unanimity among the various authorities, but some general statements can be made. The interpretation of conjunctions will obviously depend upon the planets in question, since Sun conjunction Jupiter will obviously be "better" than Sun conjunction Saturn. Oppositions can be taken to indicate a "stress" of some kind. Sextiles and especially trines are supposed to be "good" or lavorable aspects, while the square ( $90^{\circ}$ ) is considered "bad." Hans Genuit holds the view that a multiplicity of aspects in a chart indicates a complicated personality, but he is careful to add that it is difficult to decide how the aspects will work out. Ingrid Lind stresses that the strength of the planets, as indicated by the aspects, gives the key to the native's personality-in her words, to his "power to make use of his qualities."

It is just possible, though, that all these complex considerations to be included in the interpretation of a horoscope may serve to blind people by science. No matter how many factors must be considered in determining the meaning of a horoscope, the interpretations offered by the majority of astrologers seem to be simply collections of conventional statements culled from the vast number of astrological cookbooks.

Too often, interpretations are produced by what is called "blind diagnosis," which means that the astrologer does not meet his client but simply provides a written interpretation that has been made with little or no knowledge of the native's social background, education, and psychological temperament. (This is just the kind of interpretation that Margaret Hone dismisses contemptuously as "astrology by post." It is "astrology by interview" that she insists on.) The written statements offered in this way usually fall into the lowest category of astrological interpretation: the "character analysis" that is vague and obscure

A "telefortune" machine at a British holiday resort represents prediction by astrology in its simplest (and most suspect) form. The girl has set the right-hand dial (marked "female") at her Sun-sign, and is listening to a recorded forecast of her future.

enough to allow almost anyone to recognize himself or herself (especially if the vagueness seems complimentary). Statements like these crop up continually in such interpretations:
"This is a strong chart."
"There is a promise of eventual success."
"You are approaching a time of change."
"The horoscope indicates that you dislike being "trapped in a rut." "
"You possess many neglected or little-used abilities."
"Romantic feelings are strong."
Some of the more sophisticated astrologers might argue in favor of blind diagnosis, believing that prior knowledge of the native is quite unnecessary to a talented and perceptive interpreter. But most others look down on the popular type of blind diagnosis as a piece of inferior and cut-price magic. K. E. Krafft, for instance, always refused to provide any kind of interpretation without first having a personal interview with the client. Or, in the absence of an interview, he invariably demanded specimens of handwriting executed at different periods of the native's life, and photographs as well. It might seem that Krafft wanted thinos made easy for him; but we should remember that he called himself a "psychological consultant." Any kind of psychologist must know who he is dealing with; yet in a truly blind diagnosis the subject is completely unspecified. It might be a man or a woman-it might be a white mouse. All the astrologer is given is the time and place of birth.

For all this, and in spite of all the arguments against astrology (and there are many), the lact remains that some accomplished astrologers (and there are a (ew) have the unexplained ability to analyze accurately a person's character and personality as it is revealed in the horoscope's cosmic symbolism. Later in this book we will look at some examples of interpretative (and predictive) successes, and they will make one thing certain: When such positive results occur, they are not obtained on the basis of mechanical or rule-of-thumb interpretation of the chart's various combinations. Nor can they be explained in terms of coincidence. The odds are usually too heavy against "lucky guesses."

Then how are the successes achieved? There is no ready-made answer, but intuition obviously plays an important part. C. G. Jung (who included astrology among what he called the "various intuitive methods of interpreting fate") once drew an interesting analogy that can help to explain what is meant by intuition here. Jung pointed out that "whatever happens in a given moment has inevitably the quality peculiar to that moment." (Paraphrased into less precise terns, this implies that the qualities of the moment of one's birth-the time of year, etc.-leave a lasting mark upon one.) Jung continues:
"There are certain connoisseurs who can tell you merely from the appearance, taste, and behavior of a wine the site of its vineyard and the year of its origin. There are antiquarians who with almost uncanny accuracy will name the time and place of origin and the maker of an objet d'arl or piece of furniture on
merely looking at it. And there are even astrologers who can tell you, without any previous knowledge of your nativity, what the position of the sun and moon was and what zodiacal sign rose above the horizon at the moment of your birth."

Turning the analogy round, we can say that there are the rare few astrologers who can look at a map of the heavens as they supposedly were at the moment of your birth and tell you what kind of person you are, and even what seems to be in store for you in the future. This, then, must be intuition, combined with experience and with a highly developed ability to assess people's characters (these rare astrologers seldom stoop to blind diagnosis). In such cases the horoscope seems to function as merely a kind of "focusing point" for the intuition. A clairvoyant's crystal ball (for an exceptional clainoyant) serves a similar purpose; and, it might be suggested, so do dreams or various association tests in psychiatry.

But leaving this rarefied atmosphere and getting back to the ordinary astrologer (the majority) whose interpretations derive more from the tradition than intuition: If the recipient of a chart has some astrological knowledge, he can usually disentangle or analyze (and thus compensate for) the reasoning that lies behind the interpretation. But he will find this much more difficult in relation to predictive statements. Here we are no longer concerned with a fairly welldefined tradition but with the choice of one of a number of rather speculative procedures. Yet prediction is what most people who go to astrologers wantprediction dealing with their problems (usually rather obvious problems involving things like love or money).

This is asking a lot. The natal horoscope itself is at least an expression of certain astronomical facts that have been wedded to a symbolic system. But this is not the case with the so-called "progressed" horoscope, in which the various factors (planets, ascendant, etc.) are advanced or "progressed" in accordance with given key's to give a reading for the native's future.
"A day for a year" is the phrase used to describe one system of progression, which is based on the assumption that one day's movements of the planets after birth corresponds to a year in the native's life. The astrologer decides which day in the ephemeris of the birth year corresponds to the year that he wishes to assess. Thus to cast a progressed horoscope for a person approaching his 50 th birthday, the astrologer would erect and interpret a chart corresponding to the 50th day following his birth.

The so-called primary system is based not on the orbital movements of the planets but on the rotation of the earth. To avoid getting bogged down in this system's mathematical and astronomical complications, it need only be mentioned that this system involves difficult calculations, and at the same time can be wrecked by the smallest error. For instance, an error of only four minutes for the birth time would result in a further error that would be equivalent to 12 months for the "prediction."

There are other complex and symbolic keys for progressing the planetary positions, but the "day for a year" is most widely used. Any of these systems seems arbitrary enough to give ammunition to a dozen enemies of astrology. Even astrology's friends have pointed out their weaknesses. For fun K. E. Krafft once invented a legendary personality to whom he ascribed a birth date, time, and place selected at random. Then, before erecting a natal chart or calculating any progressions, he wrote down a score of imaginary events supposedly experienced by this native during his fictitious lifetime. When he investigated the native's progressions he was amused (but not surprised) to find that he could almost invariably see something in the progressed horoscope that logically seemed to fit the case.

Much predictive work is done on the basis of the so-called "transits" ; and the mechanics of this system are not quite as speculative as they are in the case of directions according to hypothetical keys or rates of progression. A transit is defined as the actual passage of a planet over the position of any planet or point in the birth chart. Thus, if one has an ephemeris for any particular year (past, present, or future), it is easy enough to check the transits. And according to the nature of the transiting planet the transit itself may be interpreted as favorable or unfavorable in nature. For example, a person born on January 23,1898 , would have had his natal Sun in $3^{\circ} 34^{\prime}$ of Aquarius. Saturn exactly transited this position at about midnight on February 2-3, 1962. Transiting Saturn conjunction Sun would not be considered favorable.

Many of the best modern astrologers prefer to avoid any kind of predictive work-perhaps in the light of its associations with cheap fortune telling, but also because predictions can be dangerous. It is very likely that certain kinds of prediction (such as the "beware of accidents during the first three days of February" variety) are often fulfilled because the native is unconsciously impelled -by what is popularly called "the power of suggestion"-to make them come true. K. E. Krafft, for instance, always refused to undertake predictive work for individual clients, partly because of the uncertain techniques (of "progressing" horoscopes) but also because of the moral and psychological dangers.

## Science or mystery?

Krafft's own astrological career (before he fell into the Nazis' hands) itself represents the two camps into which many modern astrologers are divided. First of all, many are insistent that astrology itself should be recognized as a science. No field of inquiry would appear so unsuitable for serious scientific investigation. Nevertheless, the full strength of modern statistical analysis has been turned on astrology: Krafft himself spent nearly a decade collecting and analyzing statistics to prove astrology's validity.

He began his huge and gallant undertaking while he was still a naturalsciences student at the University of Geneva in 1921. He produced detailed statistical studies (mentioned in Chapter 1) of the planetary factors and angles
in the charts of more than 2000 musicians; also, on the basis of data from the official registers at Geneva, he completed studies relating 10 hereditary factors (of a planetary nature) in the horoscopes of members of several generations in the same family. His preliminary findings were presented at a Statistical Congress at Geneva in 1923, and caused a certain amount of interest in academic circles (the more so because Prolessor L. Hersch, who had taught Krafft statistical methods, vouched for the scientific nature of his procedures).

But in spite of Professor Hersch's recommendations, the authorities refused to allow Krafft to present a thesis on "Cosmic Influences on Human Life" for a doctorate. Krafft thereupon left Genera without a diploma of any kind and removed himself to London, where he spent six months of 1924 studying advanced statistical techniques at the Liniversity of London before retuming to Switzerland in July 1924.

During the next three or four fears Krafft combined a successful career in a large Zurich printing and publishing firm with the continuation of the statistical enquiry that he had begun in 1921. By 1929 he had assembled a body of material consisting of more than a million individually numbered observations. He published a preliminary synthesis of his findings in several articles published between 1926-29 in the more respectable Geman astrological journals; and he himself had no doubt whatever that he had succeeded in providing sound scientific evidence for the existence of "cosmic influences."

Official science (foreseeably) ignored his work. But, surprisingly, even in German astrological circles Kraff's work apparently failed to stimulate more

[^7]
than a mild interest. (These circles had also initiated their own statistical project at much the same time but did little or nothing with the material that they assembled.) So Krafft was let down, so to speak, by both the sheep and the goats. In any case, very few people were qualified to follow his mathematical arguments. Poisson's Law (of probabilities) might be all very well in its way, but what most of these people wanted were comprehensible and moderately foolproof methods by which they could demonstrate that astrology "works."

Nor are the requirements any different in astrological circles today. During the past 60 years there have been many isolated attempts other than Krafft's to prove the validity of astrology upon an objectively statistical basis. There were the investigations made early in this century by the French amateur astrologer Paul Choisnard (mentioned in Chapter 1); and the experiments in blind diagnosis made in the last few years by Professor Hans Bender of the Institute of Parapsychology of the University of Freiburg (Breisgau, Germany); and many more. But perhaps one of the most striking of all modern statistical examinations of astrology was made in the early 1950s by Michel Gauquelin, a Parisian academic psychologist who had a first-class knowledge of modern statistical techniques. Gauquelin read Krafft's Traité and, although completely uninterested in the astrological tradition as such, decided to try to reconstruct some of Krafft's major experiments. He soon discovered that it would not be possible even to check them on the basis of the material presented in the Traite, and also came to the conclusion that even Krafft's statistical methods were in themselves highly suspect. He thereupon resolved to mount a full-scale experiment of his own.

Whereas Krafft had to a very large extent worked without birth-hour data, Gauquelin laboriously collected such material from official registers in France, Italy, Germany, Belgium, and Holland and eventually erected and analyzed about 24,000 horoscopes, which must have contained a total of about a quarter of a million factors. These horoscopes were then filed under "professional" categories-i.e., for scientists, sporting champions, soldiers, politicians, actors, painters, musicians, men of letters, journalists, and industrial magnates.

Much to Gauquelin's surprise (and, it seems, not without a certain embarrassment) he ultimately arrived at the conclusion that certain propositions contained in the astrological tradition could be substantiated to some extent. For example, he found that a dominant Jupiter does particularly concern ecclesiastics and a dominant Mars does link up with sportsmen. His work met with a mixed reception: The scientific critics were more disapproving than approving and, again, even the astrologers were not as interested as they might have been.

Both before and after the Second World War various groups of astrologers or individual astrologers have attempted fairly ambitious statistical investigations, although never on the same scale as either Krafft's or Gauquelin's. Furthermore, it would appear that the majority of them were initiated without a detailed


Animmense statistical examination of astrology was begun in 1924 by the Church of Light, Los Angeles, U.S.A. Thousands of horoscopes were erected, progressed, and tabulated; among the findings were statistics that seem to indicate what planet governs a given job or profession. Here, simplified charts show the dominant planets of film stars, politicans, athletes, farmersand astrologers.
knowledge of what had been attempted in the past by men like Choisnard or Krafft, or even of what was being done by contemporaries. If one characteristic of a science is the free and ready pooling of information, then astrology is not a science. And the astrologers who, like Krafft, have attempted in a scientific manner and for scientific ends to base their beliefs upon statistics have failed to interest more than a tiny minority of their colleagues.

Incidentally, along with all these batteries of statistics, some modern adherents of astrology point to other "evidence" of its rational (i.e. scientific) basis. In fact, such people go much further than most modern astrological writers (who, as we have seen, believe that the stars are merely "signs") ; they claim that the heavenly bodies actually have a causal effect on people. This hypothesis is presented in objective detail by C. G. Jung (who, like a good scientist, wished to examine every possible view of astrology before presenting his own view in terms of synchronicity). Jung writes:
"In the light of the most recent astrophysical research, astrological correspondence is probably not a matter of synchronicity but, very largely, a causal rela-



The horoscopes of a mother (top left), a father (top right), and a son (left)-three of many charts studied by K. E. Krafft in an attempt to trace an inherited resemblance between the natal charts of members of the same family. Though there is little similarity between the charts of mother and son, those of father and son have several factors in common: Both have Jupiter in Sagittarius, Moon in Libra, and adjacent ascendants (though these are in different signs).
tionship. As Professor Max Finoll has demonstrated, the solar proton radiation is influenced to such a degree by planetary conjunctions, opposition, and quartile aspects that the appearance of magnetic storms can be predicted with a fair amount of probability."

Therefore, on the basis of new scientific knowledge, Jung suggests that "it is just conceivable that there is a causal connection between the planetary aspects and the psycho-physiological disposition."

But Jung's cautious words "just conceivable" are just a scientist's way of saying that one should not dismiss any possibility before investigating it. And his own investigation (the astrological experiment discussed in Chapter 7) proved to his own satisfaction at least that, if there was anything in astrology, it was due to the operation of the non-causal principle of synchronicity. He concludes: "Although I was obliged to express doubt, earlier, about the mantic [i.e., divinatory, irrational] character of astrology, I am now forced as a result of my astrological experiment to recognize it again."
K. E. Krafft also came to recognize the irrational nature of astrology. When at the end of the 1920s he had been disappointed by the reception of his statistics, he tired of the statistics themselves and turned in the opposite direction. He had always had something of a mystical bent; this tendency flowered in the development of his complicated astro-psychological symbolical system, which he called Typocosmy.

If in the final analysis we agree with Krafft and Jung (and of course many others) that astrology is an irrational phenomenon, then the door is opened to a great many of these eccentric, "breakaway" systems of horoscopic interpretation. Obviously, the mechanical application of the tradition's stereotyped meanings has in many cases served to reduce modern astrology to the level of a parlor game. In an attempt to counteract this tendency, many modern astrologers are working to replace the tradition with a more up-to-date brand of irrationalism-for example, Furze Morrish's mystical "psycho-evolutionary" system (which was described in Chapter 3), or the German "cosmobiologists" of the Reinhold Ebertin school. Ebertin's astrological rebels completely ignore house division and do not even appear to bother overmuch about the signs of the Zodiac. They work almost solely with "complexes" of planets on a common axis. Faithful traditionalists regard Ebertin and his followers as dangerous heretics; on the other hand, Ebertin believes that the sooner the astrologers throw overboard what he calls astrology's "medieval ballast," the better.

It seems that Germany is the home of a great many modern astrological heresies. There is also the so-called Hamburg School, founded by Alfred Witte some 40 years ago, which uses eight completely hypothetical trans-Neptunian planets and, furthermore, has produced ephemerides showing their movements. This system, it is claimed, can yield excellent interpretations of horoscopes. Even traditionalist astrologers, who look askance at the Hamburg school's interpretative methods, have been known to fall back on them when all else fails.


The success of any form of divinationwhether from palms or horoscopes-may depend on an incalculable element of intuition. A tea-cup fortune teller might see among the tea leaves (left) the shapes of a lion (meaning influence), of Libra the Scales (meaning marriage), of the letter M (the initial of a loved one). But his final interpretation would depend on several factors, including position and clarity of outline. Similarly, in the interpretation of Tarot cards (which are usually set out as in the diagram above right), the stock meaning of a card varies according to its position in relation to the "significator" card (marked 1), which represents the person whose fortune is being told. The Tarot cards depicted here are (from left to right) the Lovers, the one of Cups, the Wheel of Fortune, the one of Clubs, the Knight of Wands, and Death.


In Vienna, a member of this school (signing himself simply Herr Stuiber) has in the last few years writen several short monographs entitled "Some Remarkable Astrological Experiments." These indicate that the Hamburg School astrologers can on occasion give precise and surprising answers to even improbable questions. For instance, one of these astrologers was told the time and place of birth of a woman whose identity was quite unknown to him; and he was asked what happened to the woman on March 4, 1954, at 4 P.m. in Vienna. His answer was correct: The woman had been shot in the back.

Such systems, like the tradition, could presumably be taught; but whether they could then be applied by the students with any success secms more than doubtful. It would be as impossible to create (by whatever system) a new race of astrological ivirtuosi as to create a hundred violinists or painters of genius. The short answer would be that gifted astrologers are "born, not made" with the necessary qualities-though, apart from the general idea of intuition, these qualities are apparently quite inexplicable.

It is perhaps just this irrationalism, this intuitive and mysterious basis of astrology, that is (and has always been) the sole source of its appeal-and one of the main reasons why scientific investigations of astrology seem to lack appeal even for astrologers. Most people who think about it all would like there to be some validity in astrology-something, it would seem, that cannot be scientifically proved but has to be taken on trust and perhaps with a catch in the breath. Such people will point to successful interpretations or predictions as indications that "there's something in it." And then they will be shaken by interpretations that failed, predictions that never came true. The next chapter will include a few of each kind of prediction; but what, if anything, will be proved by such occurrences must remain dependent on the individual reader, and which side of the fence he finds himself on.

## 9 Predictions and pronouncements

This chapter is simply a short anthology, containing examples from the past and present of two kinds of astrological statement. First, there are statements of opinion, setting forth the attitudes to astrology held by various authors (many of whom are well known outside the astrological realm). Some of the authors approve, others disapprove. A few of them more or less reserve their opinion (as Plutarch does); others take astrology's value for granted and merely describe some specific application (as Culpeper does). Also, some of these quotations are taken from works of literature-plays, poems, novels-and, whether for or against, reflect the interest taken by literary men of all ages in astrology as a social phenomenon.

Interspersed throughout the opinions are samples of predictive statements. Astrology has always taken upon itself the double function of providing a key to character and personality and of providing glimpses of the future. (More recent astrologers, however, have turned away from divination, and consider astrology to be more a form of psychology than of fortune telling.) Throughout previous chapters we have occasionally looked at examples of prediction; and we have seen that astrology's friends often use successful predictions as proof of the art's validity, while its enemies often use unsuccessful predictions to prove the contrary. The examples that follow are not put forward to prove anything : Included are some predictions that came true and some others that didn't.


A prophetic vision of a bad harvest (from a German woodcut of 1627) based on "celestial signs" that allegedly appeared in the sky at the time.

## Planets and shepherds

My son thou shalt understand
That, to avoid all idleness,
This matter oft thou shalt take in hand
To read of shepherd's business;
And special of the planets seven, Of Mars and Saturn that is full high
Also of Sol, the middle heaven,
And under him Venus, Luna, and Mercury.
For to know their natures all
In sooth it is a great conning,
And show what may befall
When every planet is reigning;
By their working oft we be moved
To look lusty and plays of jollity, And by some of them as clerks have proved They steer us to theft, murder, and vility.
Some be good, some be bad verily,
Some be not comfortable to man nor beast;
Some hot, some cold, some wet, some dry, If three be good, four be worse at the least; Saturn is highest, and coldest being full bad, And Mars with his bloody sword, ever ready to kill; fupiter very good, and Venus maketh lovers glad, Sol and Luna is half good and half ill, Mercury is good, and evil verily. And hereafter thou shalt know Which of the seven most worthy be, And who reigneth high and who a-low; Of every planet's propertyWhich is the best among them all That causeth wealth, sorrow, or sin. Tarry and here, son thou shall Speak soft, for now I begin.
-from The Kalendar and Compost of Shepherds, published in Paris 1493, translated about 1518


## Organs of providence

"And if we cannot deny but that God hath given virtues to springs and fountains to cold earth, to plants and stones minerals, and to the excremental parts of the basest living creatures, why should we rob the beautiful stars of their working powers? For, seeing they are many in number and of eminent beauty and magnitude, we may not think that in the treasury of his wisdom who is infinite there can be wanting even for every star, a peculiar virtue and operation; as every herb, plant, fruit, and flower adorning the face of the earth hath the like. For as these were not created to beautily the earth alone and to cover and shadow her dusty face but otherwise for the use of man and beast to feed them and cure them; so were not those uncountable glorious bodies set in the firmament to no other end than to adorn it but for instruments and organs of his divine providence, so far as it hath pleased his just will to determine."
-Sir Walter Raleigh, History of the Horld, 1614

One of Europe's greatest calamities-the Black Death of 1348-was foreseen by two medieval astrologers. John of Bassigney, an English scholar writing in the 1340 s, proclaimed that in the year 1352 (a few years late), a pestilence would cover the whole world that would kill about two thirds of the population. His prediction, he said, rested partly on information that he had obtained from other scholars on his travels, and partly on his study of the stars. (It should be mentioned that almost all of John's predictions concerned disasters, devastations, scourges, wars, and the like.)

Another 14th-century scholar, England's John of Eschenden, is supposed to have predicted the Black Death from an eclipse of the Moon and certain planetary conjunctions that occurred in 1345. He stated that the effects of the eclipse would last for eight years and six months, during which time "men and beasts will suffer long diseases and there will be death and many wars and fight; great corruption in the air, and great scarcity of crops from excessive cold and rains and worms."

## The beginnings of Rome

"Likewise in the time of Marcus Varro (as a man learned, and one that had read as much of ancient stories as any Roman) there was a friend of his called Tarrutius, a great philosopher and mathematician, who being given to the calculation of astronomy for the delight of speculation only, wherein he was thought most excellent: it did fall out that Varro gave him this question, to search out what hour and day the nativity of Romulus was, who gathered it out by certain accidents, as they do in the resolutions of certain geometrical questions. For they say, that by the self same science, one may tell before of things to come, and to happen to a man in his life, knowing certainly the hour of his nativity: and how one may tell also the hour of his nativity, when by accidents they know what hath happened to him all his life.
"Tarrutius did the question that Varro gave him. And having thoroughly considered the adventures, deeds, and gests of Romulus, how long he lived, and how he died: all which being gathered and conferred together, he did boldly judge for a certainty, that he was conceived in his mother's womb, in the first year of the second Olympiad, the three and twentieth day of the month which the Egyptians call Choeac, and now is called December, about three of the clock in the morning, in which hour there was a whole eclipse of the sun : and that he was born into the world, in the month Thouth which is the month of September, about the rising of the sun. And that Rome was begun by him on the ninth day of the month which the Egyptians call Pharmuthi, and answereth now to the month of April, between two and three of the clock in the morning. For they will say that a city hath his revolution and his time of continuance appointed, as well as the life of a man : and that they knew by the situation of the stars, the day of her beginning and foundation.
"These things and such other like, peradventure will please the readers better for their strangeness and curiosity, than offend or mislike them for their falsehood."
-Plutarch, Life of Romulus, Englished by Sir Thomas North, 1603

## Women to avoid

Beware the Woman, too, and shun her Sight, Who, in these Studies, does her self Delight. By whom a greasie Alnanack is born, With often handling, like chaste Amber, worn:
Not now consulting, but consulted, she Of the Twelve Houses, and their Lords, is free, She, if the Scheme a fatal fourney show, Stays safe at Home, but lets her Husband go. If but a Mile she Travel out of Town, The Planetary House must first be known: And lucky moment; if her Eye but akes Or itches, its Decumbiture she takes. No Nourishment receives in her Disease, But what the Stars, and Ptolemy shall please.

- Juvenal, from The Sixth Satire, translated by John Dryden (1693)

According to the "English Chronicles" of 1186, all Europe panicked at one time in that century because of a prediction by astrologers of an approaching conjunction of planets in the constellation Libra. The fact that the conjunction was to take place in an "airy" or "windy" sign was interpreted as signifying (in addition to other horrors) a terrific wind-storm. In many parts of Europe people built themselves caves underground and special services were held in many
churches. Aside from earthquakes and hurricanes it was prophesied that cities in sandy regions were to be completely buried and that Egypt and Ethiopia were to become uninhabitable. Storms apparently did occur, but nothing of the magnitude indicated in the predictions.

## Aphorisms of Cardan

When the Moon is in Scorpio in square of Saturn in Leo, or in his opposit:on when he is in Taurus partilely, the Native rarely has either Wife or Children, but if Satum be in Aquarius, he will be a mere Woman hater.

Mercury, mixing his Bearns with Mars, is a great argument of a violent death.
When Venus is with Saturn, and beholds the Lord of the Ascendant, the Native is inclinable to Sodomy, or at least shall love old hard-favoured Women, or poor dirty Wenches.

The Moon, full of Light in Conjunction with Mars, makes the Native be counted a Fool, but if she be void of light and with Saturn, he is so indeed.

A Woman that has Mars with the Moon is Right, I'll warrant her.
The Moon in Aquarius or Pisces, makes the Native not at all acceptable amongst Princes or Grandees.
In Purging, 'tis best that both the Moon and Lord of the Ascendant descend and be under the Earth, in vomiting that they Ascend.

In the past wornen were often seen as the dupes of superstition (and astrology). In this satirical engraving (1792) a corrupt fortune teller exploits an innocent maiden.

Make no new Clothes, nor first put them on when the Moon is in Scorpio, especially if she be full of light and beheld of Mars, for they will be apt to be torn and quickly worn out.

If a Comet appear whilst a Woman goes with Child, if it be either in the fourth, fifth, or eighth month, such Child will prove very prone to anger and quarrels, and if he be of quality, to sedition.

Saturn in fixed signs causes scarcity of Corn, dear years, and the Death of many Men.

When Saturn is in Libra and Jupiter in Cancer, great Changes and Alterations shall happen in the world.
-Jerome Cardan, Seven Segments, 1547, translated by William Lilly, 1676

## Calvin condemns

"There hath been of long time a foolish curiosity to judge by the stars of all things what should chance unto men: and thence to enquire and take counsel as touching those matters which are to be done. But we will by and by God willing declare that it is nothing but a devilish superstition. Yea, and it hath been rejected by a common consent as pernicious to mankind. And yet at this day it hath got the upper hand in such sort that many which think themselves witty men, yea and have been so judged, are as it were bewitched therewith."
-John Calvin (1509-63)

A page from The Ravens A/manack-a parody of the astrological almanacs that were popular in England during the 17 th century.

## Rauens Almanacke.

|  | Grice the head and face | स्\#urns |
| :---: | :---: | :---: |
| Semini |  | Secke ano |
| Armes and |  | $\underbrace{}_{\text {concrt }}$ |
| rouldets | 0 m | Whet 10 |
|  | U | macke and |
| baske. | S | Eungs |
|  | - | Curgo |
| Bagitarius |  | 6uts 8110 Thally |
| the |  | ©corpio |
| clubics |  | Secrets |
|  |  | bladet |
| Aquatiug Leg ges. | 1 | Capzicoz- |
|  | 31 | 硅racy |

Louis XI of France (1423-83) often consulted a famous astrologer named d'Almonsor. Others consulted him as well: According to one story that attached itself to this astrologer's name, he was visited late one night by two knights and their armed retainers. The knights ordered d'Almonsor to read their fates.

D'Almonsor cast their horoscopes and predicted that one knight would die violently-but heroically, and for a good cause. As for the second knight, d'Almonsor also foretold death, adding that this knight was menaced by a powerful man and that death would probably come through a poisoned drink.

The first knight was the Duke of Burgundy, who was killed in battle shortly after the prediction. The second knight, the Duke of Berry, also died shortly afterward: His death was widely thought to have been due to poison given to him on the orders of Louis XI.

A 17 th-century manuscript records a prediction that is supposed to have been made of the death of Henry IV of France in 1610. According to this story, an Italian astrologer named Francisco Corvino was working quietly in Florence when, suddenly, he announced to his companions that "tomorrow, one of the greatest monarchs in Christendom will be slain." And, the manuscript says, the very next day in Paris Henry IV was stabbed to death by an assassin.

## A mock almanac

"To the Lyons of the Wood (the young Courtiers), to the wild Buck of the Forrest (the gallants and younger Brothers), to the Harts of the field, and to all the whole Countrie that are brought up wisely, yet prove Gulls and are bome rich yet die beggars: the new English astrologer dedicateth his Ravens Almanack.
"Amongst Gentlemen that have full purses, and those that cry 'tillil, let the world slide,' the week shall run out so quickly and so merrily, that on the Saturday morning it shall be hard for them to tell whether the day that went before were Friday.
"The same losse of memorie will fall upon many that shall go drunk to bed.
"O you common Fiddlers likewise that scrape out a poor living out of dryed Cats guts: I prophesy that many of you shall this year be troubled with abominable noises and singing in your heads, in so much that a great part of you shall dye beggars."
-The Ravens Almanack, 1609
In medieval and Renaissance times, astrologers seem to have predicted the end of the world more frequently than anything else. Here are a few examples:

In 1500 an Italian astrologer, Agostino Nifo, asserted that the starry portents of a flood were undeniable, adding that this disaster was due to the sins of man, which cried out for divine punishment. In 1520 Johann Virdung, an Austrian astrologer, declared some meteors seen at Vienna to be warnings of a flood to take place at the time of some important planetary conjunctions in 1524.

The "floods in 1524 " cry was taken up by scores of astrologers and almanacs. From Rome in 1521 one Sebastian Constantinus announced that he had seen a solar eclipse in the house of death, a most ominous position. And then a famous German astrologer, Johann Stoeffler, forecast in February 1524 that 20 conjunctions would take place that year, of which 16 would occupy "a watery sign." This signified, he said, floods of such an extent that the world would be destroyed.

These predictions set off a continent-wide panic. People apparently built arks, boats, and rafts to save themselves. Whole communities packed and left home for higher ground. It was said that even Charles V, emperor of Spain and Germany, had men mark out places that would be less exposed to flood waters, in the hope that the floods would be only partial.

To keep the record straight, it should be added that during that year there were abnormally heavy rains, and considerable flooding, in many parts of Europe.

## Edmund disagrees

"This is the excellent foppery of the world, that, when we are sick in fortuneoften the surfeit of our own behavior-we make guilty of our disasters the sun, the moon, and the stars; as if we were villains by necessity, fools by heavenly compulsion, knaves, thieves and treachers by spherical predominance, drunkards, liars and adulterers by an enforced obedience of planetary influence; and all that we are evil in, by a divine thrusting on: an admirable evasion of whoremaster man, to lay his goatish disposition to the charge of a star! My father compounded with my mother under the dragon's tail, and my nativity was under ursa major; so that it follows I am rough and lecherous. 'Sfoot! I should have been that I am had the maidenliest star in the firmament twinkled on my bastardizing."
-Shakespeare, King Lear, I, ii
When Marie Thérèse of Spain (daughter of Philip IV) was a child, the court astrologer told her that she would some day marry the greatest king in all Europe and that this marriage would avert a war. In June 1660 she married Louis XIV of France and the marriage prevented a war between France and Spain over a territorial disagreement.

## Fate of an astrologer

"Nectanebus, King of Egypt, was driven into Macedonia by fourteen nations in rebellion and later he wished to teach astrology to King Alexander who, they say, was his son. Alexander gave him a push and knocked him into a pit where he broke his neck. So it would have served him better to have watched the earth than the heavens."
-Nicole Oresme, from Livre de Divinacions, 1361-65

## Fate of an anti-astrologer

"[Sir Christopher Heydon] the author of that incomparable Defence of Judicial Astrology, written in answer to a book against Astrology, by Mr. John Chambers; in which Defence, this learned Knight was so exact in his Responses, so satisfactory and full in his Arguments, so strenuous in his Proofs thereof, that when once Mr. Chambers (who no question was a great Scholar) had seen and perused it, and found the same unanswerable, and his own Arguments so fully refuted and retorted, he for very grief died."
-John Gadbury, Collectio Geniturarum, 1662

## A grain of salt

"[The astrologer sat] before a Square Table, covered with a green Carpet, on which lay a huge book in Folio, wide open, full of Strange Characters, such as the Aegrpitians and Chaldaeans were never guilty of ; not far from that, a silver Wand, a Surplus, a Watering Pot, with all the superstitions or rather fayned Instruments of his cousening Art. And to put a fairer colour on his black and foul Science, on his head he had a four-comered Cap, on his backe a fair Gown (but made of a strange fashion) in his right hand he held an Astrolabe, in his left a Mathematical Glass. . . .

A fraudulent astrologer (from the title page of Astrologaster), equipped with astrolabe

"He was as well acquainted with the Twelve Signs in Heaven, as any Tradesman with those in Cheape-side, and run over the Nature of the Seven Planets as nimbly as the French Vaulter over the Ropes. And I myself . . . could discourse to you what a sullen fellow Saturn is (on whom the permanent continuation of all things depend), what a jovial fellow fufiter (on whom the fecundity of Agent Causes rely), what a quarrelling Swash-buckler Mars (on whom the swift expedition of any thing to the effect doth hang), what a hot fellow Sol (whom all Agent Causes follow), what a wanton wench Venus (on whom the fecundity of all Material Causes look after), what a merry fellow Mercury (in whom a manifold virtue doth fourish), and what a mad Lass Luna (on whom the increase and decrease of Human things consist)."
-John Melton, Astrologaster, or the Figure Casier, 1620

## Heaven's alarm to the world

"The Great God, when he made the world, placed the stars in heaven, to be for signs as to events that in the ordinary course of nature should come to pass. (Gen. I : 14.)
"There are also extraordinary stars sometimes appearing in the heavens . . . blazing stars called comets, from the streamlike long hair which attends them. Such a star is prodigious and a fearful sight. . . . As for the sign in heaven now appearing, what calamities may be portended thereby? . . . In general we have cause to fear that sweeping judgments are thereby signified; that the Lord is coming down from Heaven with a long beesom of destruction which shall sweep away a world of sinners before it.
"Judgments, which are God's sharp razors on mankind whereby he doth shear down multitudes of sinful people, draw near. . . God by the blazing star is speaking to other places, and not to New England only. And it may be He is declaring to that generation of hairy scalps who go on still in their trespasses that the day of the Calamity is at hand.
". . . I am persuaded that the floods of great water are coming. I am persuaded that God is about to open the windows of heaven and to pour down the cataracts of his wrath ere this generation is passed away. Let us then prepare for trouble, for the Lord has fired his beacon in the heavens. Let everyone that is godly pray unto the Lord before the Floods of great waters come nigh unto us."
-The American religious leader Increase Mather, from a sermon
on the comet of 1680

## An astrologer recants

"I also being a boy learned this Art of my Father, afterward I lost much time and labour therein; at length I learned that altogether it was built upon no other foundation but upon mere trifles, and feignings of imaginations. . . ."
-Henry Cornelius Agrippa, Of the Vanitie and Uncertaintic of Artes and Sciences, translated by James Sanford, 1569

In 1583 the English astrologer Richard Harvey (along with many oulier astrologers) predicted a conjunction of Saturn and Jupiter for high noon on April 28 of that year. He pointed out that these two planets had been in conjunction in the watery sign of Cancer just prior to the Biblical deluge in Noah's time. This time they would be together in the fiery sign of Aries: The result, he said, would be burnings, strife, and other fiery calamities (including the appearance of a great comet). "The very frame of the world cannot endure long after," he added, and "the same Jesus Christ shall come again in unspeakable majestie!"

## An attack on Lilly

'Mr. Lillie in all these dreadful Eclipses and malignant Aspects, finds much matter of bad, dismal and disastrous concemement, to Princes, Potentates, Priests, Lawyers, Husbandmen, Graziers, etc. but none at all ever to Wizards, Witches, Conjurers, Fortune-tellers, Sorcerers, Stargazers, Astrologers, etc. No malignity of any Aspect belike is able to reach them."
-Thomas Gataker, Against the Scurrilous Aspersion of that grand Imposter, Mr. William Lillie, 1653

The astrologer-astronomer William Whiston (who succeeded Isaac Newton at Cambridge in 1703) gave a lecture in 1736 predicting an eclipse of the Moon, accompanied by the appearance of a great comet, for precisely five A.m. on the following Thursday. These portents, Whiston told his audience, would herald the return of the Messiah to earth; the world would end on the next Friday, by fire and earthquake.

In fact, a comet did appear at about the appointed time. The prediction had been fairly widely publicized, and the city of London was briefly thrown into panic. Thousands of people fled the city.

## Planets and plants

(The Stars' own Vegetable Garden and Medicine Chest)
Celandine: This is an herb of the Sun, and under the celestial Lion: it is one of the best cures for the eyes; for the eyes are subject to the luminaries: let it then be gathered when the Sun is in Leo, and the Moon in Aries.

Cucumbers: There is no dispute to be made, but that they are under the dominion of the Moon, though they are so much cried out against for their coldness, and if they were but one degree colder they would be poison.

Fennel: One good old fashion is not yet left off, viz, to boil Fennel with fish; for it consumes that phlegmatic humour, which fish most plentifully afford and annoy the body with, though lew that use it know wherefore they do it ; I suppose the reason of its benefit this way is, because it is an herb of Mercury, and under Virgo, and therefore bears antipathy to Pisces.

Peach-tree: Lady Venus owns this tree, and by it opposes the ill effects of Mars; and indeed for children and young people, nothing is better to purge
cholera and the jaundice, than the leaves and flowers of this tree, being made into a syrup or conserve : let such as delight to please their lust, regard the fruit; but such as have lost their health, and their children's, let them regard what I say, they may safely give two spoonfuls of the syrup at a time; it is as gentle as Venus herself.

Nettle (Urica Vulgaris): This is an herb Mars claims dominion over. You know Mars is hot and dry, and you know as well that winter is cold and moist; then you may know as well the reason why Nettle Tops, eaten in the spring, consume the phlegmatic superfluities in the body of man, that the coldness and moistness of winter has left behind.

Wild carrots: Wild Carrots belong to Mercury, and therefore break wind, and remove stitches in the sides, provoke urine and women's courses, and help to break and expel the stone; the seed also of the same works the like effect, and is good for the dropsy, and those whose bellies are swollen with wind.

Houseleck : It is an herb of Jupiter ; and it is reported by Mezaldus, to preserve what it grows upon from fire and lightning.

Lettuce (Common Garden): The Moon owns it, and that is the reason it cools and moistens what heat and dryness Mars causes, because Mars has his full in Cancer; and it cools the heat because the Sun rules it, between whom and the Moon is a reception in the generation of men.

Hellebore: It is an herb of Saturn, and therefore no marvel if it has some sullen conditions with it, and would be far safer, being purified by the art of the alchymist than given raw.

Saffron: It is an herb of the Sun, and under the Lion, and therefore you need not demand a reason why it strengthens the heart so exceedingly.

Lily of the Valley: It is under the dominion of Mercury, and therefore it strengthens the brain, recruiting a weak memory, and makes it strong again.

Artichokes: They are under the dominion of Venus, and therefore it is not wonderful if they excite lust."
-Nicholas Culpeper, The English Physician Enlarged, 1653, (revised and amplified by G. A. Gordon)
Postscript:-In the same work some other plants of interest are assigned as follows:

To the Sun: The olive, peony, vine, and walnut.
To the Moon: Water-cress and water lily, pumpkin and turnip, sea holly, willow, and white rose.

Mercury: Mushrooms, lavender, and parsley.
Venus: Apple and cherry, gooseberry, raspberry and strawberry, primrose, sorrels, wild thyme, and violet.

Mars: Chives, onion, mustard, radish and horse-radish, hops and peppers, tobacco, honeysuckle, wormwood.

Jupiter: The oak and the orange, peas and dandelion.
Saturn : Holly and ivy, hemlock and nightshade, poplar, quince, and yew.




Two 17th-century English doctors who successfully practiced both medicine and astrology: Left, Nicholas Culpeper (depicted with in his own horoscope) above his house in London: above, a portrait of John Case from his book The Angelical Guide.

## The star-doomed infant

No sooner does he peep into
The asorld, but he has done his do
Married his punctual dose of wives,
Is cuckolded, and breaks, or thrives, As if men from the stars did suck
Old-age, diseases, and ill-luch,
Wit, folly, honor, virtue, vice,
Trade, traiel, women, claps, and dice; And draw with the first air they breath,
Battle, and murther, sudden death.
Are not these fine commodities
To be imported from the skies?
-Samuel Butler, Hudibras, 1664

## An astrologer's advertisement

Within this place
Lives Doctor Case.
He is said to have got more by this distich, than did Mr. Dryden by all his works. —Joseph Addison in The Taller, October 21, 1710

## The star-struck valet

(Scene: House of an Astrologer)
The Valet: Lord, save us, Françoise, there's a career for one—Astrology! I'm trying to learn it on the side. I'm carefully collecting notes of everything our master says, and to show you how far I've progressed, you're now going to be completely astonished. Look, I'm working on an almanac for the year Sixteen Eightyone that we're just about to enter. . . . I've already done a good part of it. I've filled in all the days of all the months and I've almost this moment polished off December. But I'm left with one little difficulty, about which I want to consult you. I don't know if at the end of my almanac (for I must fill it out a little) I ought to put in 'Some Lives of Notable Persons' or 'The Methods of Planting Cabbages.'
[Later in the play the action is affected by the great new comet of 1680; the Astrologer has received a letter from Rome.]
The Countess: Monsieur, I observe strong signs of astonishment on your features.
The Astrologer: Ah, Madame, what a prodigy!
The Countess: Explain yourself immediately.
The Astrologer: Here's certainly something no one can have seen before.
The Countess: What's happened at Rome that's more terrible than here?
The Astrologer: A comet-
The Countess: Yet another comet! You terrify me.
The Astrologer: But you'd never guess what kind of comet!
The Countess: What is it this time?
The Astrologer: A comet in an egg.
The Countess: A comet in an egg! I'll never eat eggs again.
The Valet: Nor me either! Suppose I were to turn up a whole omelette of comets?
—Bernard Fontenelle, La Comète, 1681

A British astrological writer using the pseudonym "Astrologus" stated in 1793 that, from eclipses (especially of the Sun), astrologers can safely predict "notable events concerning the rise or fall of governments; the foundation or fall of cities, towns or fortifications-the breach of leagues among princes, the captivity, sorrow, or sickness of their miserable subjects; wars, quarrels, and tempests; inundations, duels, and litigations-religious controversies, and irreligious persecutions among mankind-the death or destruction of cattle, the infidelity of servants and the treachery of lriends-the decay of navigation and the loss of shipping."

He offered the following instances as proof:
On April 30, A.D. 59, an eclipse of the Sun was followed by the murder of Agrippina by Nero. In A.D. 463, an eclipse was followed by a war in Persia. On March 20, 1140, after a total eclipse of the Sun, King Stephen lost a battle with


William II, the German kaiser, reviewing troops in 1918. A British almanac forecast war from the kaiser's horoscope in 1908.
the Earl of Gloucester and was taken prisoner. In 1536 an eclipse was followed by the separation of England from the Church of Rome and the death of Queen Catherine. Two eclipses in 1781 (one in April and the other in October), which were total eclipses as seen from the West Indies, were accompanied by "terrible stoms and tempests that almost desolated the West India Islands, sunk the Ville de Paris, many other ships . . . and a great number of merchant men."

We can add to this list two examples (from other sources) of events that coincided with eclipses of the Moon: In 1870, three days after a total eclipse of the Moon, the Emperor Napoleon III declared war on Prussia. And in 1897 the catastrophic collapse of the Tay Bridge in Scotland while a passenger train was crossing it took place during a partial eclipse of the Moon.

In 1908 the British periodical Old Moore's Monthly Messenger analyzed the chart of the kaiser of Germany as follows:
"The Kaiser's Ascendant is nearly opposite the Mars of King Edward of England, while Mercury is on Mars in the latter, a certain indication of disputes and quarrels, and that natural action of the latter is likely to militate against the former's colonial policy. We call special attention to the point, because in view of the coming planetary influences and especially eclipses there is no doubt that the dogs of war cannot be held in the leash much longer. . . ."

## Betting by the stars

"Most of Priscilla's days were spent casting the horoscopes of horses, and she invested her money scientifically, as the Stars dictated. She betted on football too, and had a large notebook in which she registered the horoscopes of all the players in all the teams of the League. The process of balancing the horoscopes of two elevens one against the other was a very delicate and difficult one. A match between the Spurs and the Villa entailed a conflict in the heavens so vast and so complicated that it was not to be wondered at if she sometimes made a mistake about the outcome."
-Aldous Huxley, Crome Yellow, 1921
In 1946 a popular British astrological magazine stated: "Because of the astrological portents in his horoscope, rumours of Stalin's ill-health may be taken seriously." The writer went on to say that Stalin's disappearance from the international scene within the next 18 months was almost a certainty, and then there would be an astonishing reorientation in U.S.S.R. internal and foreign policies. (Stalin lived and remained in power until 1953.)

A recent "end-of-the-world" forecast was the catastrophe predicted by Indian astrologers in 1962. In Britain, a mountain-side prayer meeting was held to avert this disaster.


In January, 1910, Old Moore's Monthly Messenger, dealing with the chart of King Edward VII, warned against "accidents and indisposition." In April 1910 the magazine considered the new Moon and drew from it an indication of future "illness and death in Royal circles." In the same issue, an article deroted to the king's son, the Prince of Wales, stated: "It is not pleasing to note that Sun is directed to square Satum, an influence which operates from 1908 to 1910. . . Saturn rules MC, which denotes the father. It is therefore clear that a family loss is foreshadowed in the near future." (King Edward Vll died in May 1910.)

## Mr. Nehru writes

(Relerring to the birth of his first grandson in 1944): "In my' letter to Indu I suggested to her to ask you to get a proper horoscope made by a competent person. Such permanent records of the date and time of birth are desirable. As for the time I suppose the proper solar time should be mentioned and not the artificial time which is being used outside now: War time is at least an hour ahead of the normal time."
—Prime Minister Nehru, Letters to his Sister, 1963

A German astrologer, Herr Troinski, wrote in the December 1958 issue of the Berliner Auskunftsbogen: "In the year 1963, Pope John XXIII will come under very dangerous tertiary directions, both primary and secondary. . . "He alluded tc certain aspects that would occur specifically Mars in opposition to Saturn and the Sun in square to Mars, Uranus, and Pluto. And he concluded with the prophecy: "This could mean the death of the Pope."

## A superstitious residue

"They [modern defenders of astrology] will not acknowledge honestly the decisive fact that their futile practices have been investigated with the greatest care and impartiality by the formost scholars of the leading Westem nations for now almost three centuries, and that not one of these has failed to condemn them as the stale, superstitious residue of what was once a great, pantheistic religion and a glorious philosophical attempt to understand and rationally to explain the universe, a bold enterprise to which we owe not only the whole of our astronomical knowledge, but the most essential part of all our physical science."
-Robert Eisler, The Royal Art of Astrology, 1946
A British astrological publication in 1959 predicted trouble for the year 1962. An eclipse of the Sun would be accompanied with a conjunction of the malefics Mars and Saturn, Neptune in square to Mars and Saturn, and other similarly calamitous portents. Many sudden and violent events would occur, the article said, among which would be a period of great hardship for the British royal [amily. Also, during this period Britain itself would go through terrible turmoil : The existing form of government would be overthrown with much bloodshed.

## A science of relating

"Astrology does not offer an explanation of the laws of the universe, nor why the universe exists. What it does, to put it in simplest terms, is to show us that there is a correspondence between macrocosm and microcosm. In short, that there is a rhythm to the universe, and that man's own life partakes of this rhythm. For centuries men have observed and studied the nature of this correspondence. Whether astrology be a science or a pseudo-science, the fact remains that the oldest and the greatest cisilizations we know of had for centuries upon centuries used it as a basis for thought and action. That it degenerated into mere fortune-telling, and why, is another story.
"It is not to discover what is going to 'happen' to us, it is not to forestall the blows of fate, that we should look to our horoscopes. A chart when properly read should enable one to understand the overall pattern of one's life. It should make a man more aware of the fact that his own life obeys the same rhythmical, cyclical laws as do other natural phenomena. It should prepare him to welcome change, constant change, and to understand that there is no good or bad, but always the two together in changing degrees, and that out of what is seemingly bad can come good and vice versa. Astrology might indeed be called a science of relating, whose first fruit is the dictum that fate is character."
—Henry Miller, from the foreword to Henry Miller: His World of Urania, by Sydney Omarr, 1960

As for the future, the famed 16 th-century astrologer and seer Nostradamus perhaps deserves the last vaguely ominous and cryptic word. The following quatrains are from the Complete Prophecies of Nostradamus, translated in 1951 by Henry Robert :

In the year 1999 and seven months
From the skies shall come an alarmingly powerful king,
To raise again the greal king of the facquerie, Before and after, Mars shall reign at will.

The year seven of the great number being past There shall be seen the sports of the ghostly sacrifice
Not far from the great age of the millenmium,
That the buried shall come out of their graves.
The translator in his notes on the quatrains states that the first of these apparently means that a tremendous world revolution is predicted for the year 1999, which is to bring about a complete upheaval of existing social orders, and that this revolution is to be preceded by world war. And the second of the quoted quatrains, the translator says, means simply that in the year 7000 judgment day will be pronounced, the dead will rise from their graves, and the world will come to an end.

Appendices

## The 10 planets

## Sun

The masculine principle; spirit. mind, the living being; the will to live, vitality, willpower, determination; health and the heart: the man, the father, authority.

## Moon

The feminine principle; the soul, the psyche: the mother, fecundity, adaptation; the wife, the family, the nation; hereditary qualities.'


Mercury
Intellect, mediation, transmission of know- Gemini ledge ; judgment. critical ability, analysis.

## Venus

Love and art: physical attraction; feeling,
Taurus sense of harmony and beauty; girl or maiden,

Libra sweetheart or mistress.

## Mars

Energy and action; courage and determination: impulsiveness, ruthlessness, brutality: Aries soldiers, sportsmen, technicians, craftsmen, surgeons.


## The 12 signs of the Zodiac

Spheres of Influence
Related Planets


Aries
Will, the urge to act, the spirit of enterprise,
Mars leadership, passion, ambition, impatience, rashness.


Taurus
Perseverance, consolidation, endurance, sense of form.


Gemini
Vicariousness, adaptability, mobility, super-
Mercury ficiality.


Cancer
Wealth of feeling, parenthood, the quality of
Moon "attachment."


Leo
The will to create, self-confidence, self-
Sun reliance, action, the sex urge.


Virgo
Diligence and care, tidiness, correct behavior,
Mercury the critical faculty.


Aquarius

Saturn (Uranus)

Expectancy, powers of observation, adaptability, planning, helpfulness.


Pisces
Jupiter (Neptune)

Vagueness, sensitivity, emotionalism, intuition: self-sacrifice.



First
The body of the native, his physical condition
Aries and appearance.


## Second

Money, possessions of value; trade; gain or
Taurus loss.


Third
Letters, papers, writings; all means of com-
Gemini
Mercury munication and transportation; brothers and sisters, near relations, neighbors.


## Fourth

The residence; the place of birth; houses.
Cancer landed property, grounds, mines. underground Moon places; the mother in a man's chart, the father in a woman's.

## Fifth

Pleasures, love affairs, non-marital sex ties; Leo children, schools, theatres, education; places Sun of amusement and all sensual enjoyments.


## Sixth

Health, servants, food, clothing, physical com-
Virgo Mercury forts; employees, small animals, and domestic creatures: climatic and other conditions affecting health.

Seventh
Libra The husband in a woman's chart, the wile in a
Venus man's: partners. contracts. agreements: litigation, open enemies.


Eighth

| Scorpio | Death. dissolution, loss; the wife's or hus- |
| :--- | :--- |
| Mars | band's wealth and possessions: the partner's |
| property; legacies, bequests, and wills. |  |



Ninth
Sagittarius
Religion and philosophy: publications: sea Jupiter voyages. foreign countries: dreams. spiritual occurrences; the clergy and church affairs: relatives by marriage.


Tenth
Capricorn The occupation; credit. honor, and rank:
Saturn employer, superior, or master; business affairs, government.


Eleventh
Aquarius
Friends. counselors, companions, society; Saturn wishes and hopes: financial affairs of employers or others in command of the native.


Twelfth
Pisces
Jupiter (Neptune)

Confinement, restraint, prison, exile: secret enemies, plots : large animals.


## The major aspects

No hard-and-fast meanings can be ascribed to the planetary aspects, which (more than any other horoscopic element) must be judged in relation to thechartas a whole. This list merely explains their general tendencies. Aspects have always been classified as "good" or "bad," though today they are often labeled "easy" or "difficult." (Conjunction falls into neither category, since its influence depends entirely on the qualities of the two planets involved.)


In a conjunction, the planets' natures must be considered in relation to each other; in some cases they will harmonize and in others, conflict. For example: Saturn (traditionally cold) in conjunction with Venus (naturally loving) will tend to limit or chill the affections. Mars and Venus in conjunction will enforce each other's sensuality and will lead to happy love relationships.


Opposition
Traditionally a "difficult" aspect, implying tension that may lead to an aggravation or a conflict of the planets' influences: On the other hand, this "bad" effect may sometimes be modified: For example, Jupiter and the Sun in opposition, which could produce conceit and extravagance, might be offset by the caution of a wellplaced Saturn.

$\triangle \quad$ Trine
An "easy" aspect, indicating a harmonious relationship of the planets involved. Some astrologers regard. say. Venus trine Jupiter as a mark of too easy-going a nature ; but Mars and Saturn in trine might well imply practical ability and courage.

## Name

A "difficult" aspect showing an uneasy
Square
struggle between the various planetary principles. Moon square Venus (both planets concerned with the home) might show a lack of domestic harmony. With Mars square Saturn, Mars's fierceness might aggravate the coldness of Saturn to produce brutality.

Square $\quad \square$


Like trine, a favorable aspect (though not so Sextile $*$


Some other less important aspects (to which most astrologers today tend to give little weight in horoscopes) are briefly as follows:

Like square, a difficult aspect.
An "unnatural" aspect, implying strain.
Traditionally considered, like sextile. to be a favorable aspect. Today both semisextile and quincunx are treated by most astrologers as "stressful" relationships.

Semi-square L
Quincunx $\pi$
Semi-sextile
V


## Appendix 3

## National horoscopes

Italy


England


In this chart (cast for July 2, 1871, the date of King Victor Emmanuel's triumphal entry into Rome) heavy "afflictions" are apparent across the "angles" formed by the ascendant-descendant and the M.C.-I.C. These imply that, despite good intentions, the consolidation of the new unified nation could be a long and difficult process. Under Mussolini's regime, Mars's aggressive and ambitious elements (in conjunction with the ascendant, Libra) were in full play. For example, the invasion of Abyssinia on October 3, 1935, took place when the Sun was in conjunction with Mars and in square with Italy's Jupiter. Saturn, and Moon. The failure of Mussolini's later policies is suggested by Saturn square Mars ; and on July 25, 1943, Uranus trine Italy's Mars coincided with the fall of Fascism.

A horoscope cast for the coronation of William I, the first king of England, on Christmas Day, 1066. The emphasis on the ninth house considered together with the nature of the fiery sign Aries (the ascendant) adds up to the conventional picture of England as an adventurous, pioneering, and empire-building nation. At the outbreak of World War II, the Sun was exactly trine the position of the Sun in this horoscope. whereas Saturn was placed exactly over Hitler's Sun. The determined resistance offered by the English during the Battle of Britain is reflected in the protective position of Saturn, in trine to England's Sun.

## Israel

Traditionally, the Taurus-Scorpio polarity is associated with the Jews, but in this chart (cast for the proclamation of the State of Israel on May 14, 1948) the Sun in Taurus and the Cancerian mid-heaven can be said to imply the Jewish people's centuries-old longing for a national home. Neptune rising suggests that the high aspirations of Zionism may be achieved only at the expense of strife and bloodshed, since the Sun is in square with Mars and Saturn. So-called "friends" of Israel could provoke conflict, and internal political feuds could hamper the State's development. The opposition of Jupiter (which, due to its position in the third house. could be associated with the Arabs) to Uranus is a warning of sudden and explosive outbreaks whenever major transits "activate" these points on the chart.

A horoscope cast for September 4, 1870, when the Third French Republic was proclaimed. Disfupting and dangerous aspects of Mars and Uranus (here in opposition to the ascendant) and an unsettling tension across the chart have been persistent features of many of the crises in recent French history. For example, when war broke out on August 4, 1914, the Moon was in conjunction with the ascendant and in opposition to Uranus and Mars, which was square Saturn and Jupiter. Similarly, when the cease-fire in Algeria came into force on March 19, 1961. Saturn was in opposition to Mars-Uranus-an aspect that cannot be said to promise peace.


France


## West Germany


U.S.S.R.


A horoscope cast for the formation of the West German Republic on May 23, 1949. reflects the pattern of Germany's prosperity and progress since the war. A capacity for hard work and discipline and a sense of national duty are apparent from the positions of Capricorn in the ascendant, the Moon in Aries, Scorpio at the mid-heaven, and Mars in Taurus. The aspects of Mars square Pluto and the Sun square Saturn might prove ominous, if Germany's interests should ever conflict with the present balance of world power. This unfortunate possibility is further emphasized by the difficult relations of Mars and Pluto to Russia's fateful Saturn-Sun-Mercury-Uranus T-square formation.

The most significant feature of this chart (cast for November 8, 1917) is the difficult "T-square" pattern formed by the opposition between Saturn and Uranus, both of which are in square to the Sun and Mercury. This configuration of planets suggests the underlying conflict and disagreements between the supreme authority (the Sun), scientists (Uranus), and the state administrators and police (Saturn), which could periodically bring about drastic changes in interna! policy. Nazi Germany's preparations for invading Russia (April-May 1941) took place when Germany's Saturn was transiting the U.S.S.R.'s Sun-Saturn-Uranus. When the invasion began on June 22, 1941, Neptune (treachery and fanaticism) and Mars (aggression) were in opposition on Germany's chart and were bisecting the "polarity" formed by Russia's ascendant and descendant.

The chart has been cast for the Declaration of Independence on July 4, 1776. It shows Gemini (traditionally the sign of America) in the ascendant, the Sun in conjunction with Jupiter, and the Moon at the mid-heaven in Aquarius-all of which reflect the selfconfidence, patriotism, and enthusiasm that are often associated with America. The positions of the ascendant, the mid-heaven. and the Moon are always considered to indicate events of national importance. For example, on November 22, 1963, the day of President Kennedy's assassination, Saturn was in conjunction with America's Moon, and Mars was in opposition to its position in the U.S.A.'s original chart.


The Atomic Age


Tables of sidereal time

Everyone knows his Sun-sign-the sign he was "born under"-but few people know their ascendant, which is far more important in deciding one's astrological "type." The following tableslist the sidereal time at noon at Greenwich for every day since January 1, 1901 ; and from them anyone born anywhere in the Northen Hemisphere can calculate the S.T. of his birth time. (For the Southern Hemisphere, see p. 326.) Once
the S.T. has been worked out, finding the ascendant is a simple matter of reference to the appropriate table.

| 1901 | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Occ. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 184146 | 204359 | 223423 | 03636 | 23453 | 4376 | 63522 | 83736 | 103949 | 12385 | 144019 | 163835 |
| 2 | 184543 | 204756 | 223819 | 04032 | 23849 | 4412 | 63919 | 84132 | 104345 | 12422 | 144415 | 164232 |
| 3 | 184939 | 205152 | 224216 | 04429 | 24246 | 44459 | 64316 | 84529 | 104742 | 124559 | 144812 | 164628 |
| 4 | 185336 | 205549 | 224612 | 04826 | 24642 | 44855 | 64712 | 84925 | 105139 | 124955 | 14528 | 165025 |
| 5 | 185732 | 205946 | 22509 | 05222 | 25039 | 45252 | 6519 | 85322 | 105535 | 125352 | 14565 | 165429 |
| 6 | 19129 | 21342 | 22546 | 05619 | 25435 | 45649 | 6555 | 85718 | 105932 | 125748 | 1501 | 165818 |
| 7 | $19 \quad 525$ | 21739 | 22582 | 1015 | 25832 | 5045 | 6592 | 9 : 15 | 11328 | 13145 | 15358 | $17 \quad 215$ |
| 8 | 19922 | 211135 | 23159 | 1412 | 3228 | $\begin{array}{llll}5 & 4 & 42\end{array}$ | 7258 | 9512 | 11725 | 13541 | 15754 | $17 \quad 691$ |
| 9 | 191319 | 211532 | 23555 | 188 | $\begin{array}{lll}3 & 6 & 25\end{array}$ | 5838 | $7 \quad 655$ | 988 | 111121 | 13938 | 151151 | 17108 |
| 10 | 191715 | 211928 | 23952 | 1125 | 31022 | 51235 | 71051 | 9135 | 111518 | 131334 | 151548 | 17144 |
| 11 | 192112 | 212325 | 231348 | 1161 | 31418 | 51631 | 71448 | 9171 | 111914 | 131731 | 151944 | 17181 |
| 12 | 19258 | 212721 | 231745 | 11958 | 31815 | 52028 | 71845 | 92058 | 112311 | 132128 | 152341 | 172157 |
| 13 | 19295 | 213118 | 232141 | 12355 | 32211 | 52424 | 72241 | 92454 | 11278 | 132524 | 152737 | 172554 |
| 14 | 19331 | 213515 | 232538 | 12751 | 3268 | 52821 | 72638 | 92851 | 11314 | 132921 | 153134 | 172950 |
| 15 | 193658 | 213911 | 232935 | 13148 | 3304 | 53218 | 73034 | 93247 | 11351 | 133317 | 153530 | 173347 |
| 16 | 194054 | 21438 | 233331 | 13544 | $\begin{array}{llll}3 & 34 & 1\end{array}$ | 53614 | 73431 | 93644 | 113857 | 133714 | 153927 | 173744 |
| 17 | 194451 | 21474 | 233728 | 13941 | 33757 | 54011 | 73827 | 94041 | 114254 | 134110 | 154323 | 174140 |
| 18 | 194848 | 2151 | 234124 | 14337 | 34154 | 5447 | 74224 | 94437 | 114650 | 13457 | 154720 | 174537 |
| 19 | 195244 | 215457 | 234521 | 14734 | 34551 | 5484 | 74620 | 94834 | 115047 | 13493 | 155117 | 174933 |
| 20 | 195641 | 215854 | 234917 | 15130 | 34947 | 5520 | 75017 | 95230 | 115443 | 13530 | 155513 | 175330 |
| 21 | $20 \quad 037$ | $22 \quad 25$ | 235314 | 15527 | 35344 | 55557 | 75414 | 95627 | 115840 | 135657 | 155910 | 175726 |
| 22 | 20434 | 22647 | 235710 | 15924 | 35740 | 55953 | 75810 | $10 \quad 023$ | $\begin{array}{ll}12 & 236\end{array}$ | 14053 | 1636 | 18123 |
| 23 | $20 \quad 830$ | 221043 | 017 | 2320 | 4137 | 6350 | 827 | 10420 | $12 \quad 633$ | 14450 | 1673 | 18520 |
| 24 | 201227 | 221440 | 054 | 2717 | 4533 | $6 \quad 747$ | 863 | $10 \quad 816$ | 121030 | 14846 | 161059 | 18916 |
| 25 | 201623 | 221837 | 090 | 21113 | 4930 | 61143 | 8100 | 101213 | 121426 | 141243 | 161456 | 181313 |
| 26 | , 202020 | 222233 | 01257 | 21510 | 41326 | 61540 | 81355 | 101610 | 121823 | 141639 | 161852 | 18179 |
| 27 | , 202417 | 222630 | 01653 | 2196 | 41723 | 61936 | 81753 | 10206 | 122219 | 142036 | 162249 | 18216 |
| 28 | 202813 | 223026 | 02050 | 2233 | 42120 | 62333 | 82149 | 10243 | 122616 | 142432 | 162646 | $1825 \quad 2$ |
| 29 | 203210 |  | 02446 | 22659 | 42516 | 62729 | 82546 | 102759 | 123012 | 142829 | 163042 | 182859 |
| 30 | 20366 |  | 02843 | 23056 | 42913 | 63126 | 82943 | 103156 | 12349 | 143225 | 163439 | 183255 |
| 31 | 20403 |  | 03239 |  | 4339 |  | 83339 | 103552 |  | 143622 |  | 183652 |


| Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184049 | 20432 | 223325 | 03538 | 23355 | 4368 | 63425 | 83638 | 103851 | 12378 | 143921 | 163738 |
| 184445 | 204658 | 223722 | 03935 | 23752 | 4405 | 63821 | 84035 | 104248 | 1241 | 144318 | 164134 |
| 184842 | 205055 | 224118 | 04332 | 24148 | 4441 | 64218 | 84439 | 104644 | 12451 | 144714 | 164531 |
| 185238 | 205451 | 224515 | 04728 | 24545 | 44758 | 64615 | 84828 | 105041 | 124858 | 145111 | 164927 |
| 185635 | 205848 | 224911 | 05125 | 24941 | 45154 | 65011 | 85224 | 105438 | 125254 | 14557 | 165324 |
| $\begin{array}{ll}19 & 031\end{array}$ | 21245 | 22538 | 05521 | 25338 | 45551 | 6548 | 85621 | 105834 | 125651 | 14594 | 165720 |
| 19428 | 21.641 | 22575 | 05918 | 25734 | 45948 | 6584 | 9017 | 11231 | 13047 | 1530 | $17 \quad 117$ |
| $19 \quad 824$ | 211038 | 231 | 1314 | $\begin{array}{llll}3 & 131\end{array}$ | 5344 | $\begin{array}{llll}7 & 2 & 1\end{array}$ | 9414 | 11627 | 13444 | 15657 | $17 \quad 514$ |
| 191221 | 211434 | $\begin{array}{llll}23 & 4 & 58\end{array}$ | 1711 | $\begin{array}{llll}3 & 5 & 27\end{array}$ | 5741 | $7 \quad 557$ | 9811 | 111024 | 13840 | 151053 | 17910 |
| 191618 | 211831 | 23854 | 1117 | 3924 | 51137 | 7954 | 9127 | 111420 | 131237 | 151450 | 17137 |
| 192014 | 212227 | 231251 | 115 | 31321 | 51534 | 71350 | 9164 | 111817 | 131633 | 151847 | 17173 |
| 192419 | 212624 | 231647 | 1190 | 31717 | 51930 | 71747 | 9200 | 112213 | 132030 | 152243 | 17210 |
| 19287 | 213020 | 232044 | 12257 | 32114 | 52327 | 72144 | 92357 | 112610 | 132426 | 152640 | 172456 |
| 19324 | 213417 | 232440 | 12654 | 32510 | 52723 | 72540 | 92753 | 11306 | 132823 | 153036 | 172853 |
| 19360 | 213814 | 232837 | 13050 | 3297 | 53120 | 72937 | 93150 | 11343 | 133220 | 153433 | 173249 |
| 193957 | 214210 | 233234 | 13447 | $\begin{array}{llll}3 & 33 & 3\end{array}$ | 553517 | 73333 | 93546 | 11380 | 133616 | 153829 | 173646 |
| 194353 | 21467 | 233630 | 13843 | 3370 | 53913 | 73730 | 93943 | 114156 | 134013 | 154226 | 174043 |
| 194750 | $2150 \quad 3$ | 234027 | 14240 | 34056 | 54810 | 74126 | 94340 | 114553 | 13449 | 154622 | 174439 |
| $\begin{array}{llll}19 & 51 \\ 19 & 47 \\ 19\end{array}$ | 21540 | 234423 | 14636 | 34453 | S 476 | 74523 | 94736 | 1149 49 | 13486 | 155019 | 174836 |
| $1 \begin{aligned} & 195543 \\ & 1959\end{aligned}$ | 215756 | 234820 | 1 5033 | 34850 | $\begin{array}{lllll}5 & 51 & 3\end{array}$ | 74919 | $\bigcirc 5133$ | 115346 | 13522 | 155416 | 175232 |
| 195940 | $22 \quad 153$ | 235216 | 1 5429 | 35246 | 55459 | 75316 | 95529 | 115742 | 135559 | 155812 | 175629 |
| $\begin{array}{lll}20 & 3 & 36 \\ 20 & 7 & 33\end{array}$ | $\begin{array}{lll}22 & 5 & 49 \\ 22 & 9 & 46\end{array}$ | 23 56613 | $\begin{array}{lll}15826 \\ 2 & 2 & 23\end{array}$ | 3 3 4 4 | 55856 | 75713 | 95926 | $\begin{array}{ll}12 & 139\end{array}$ | 135955 | $\begin{array}{ll}16 & 2\end{array}$ | 18025 |
| 2011129 | $\begin{array}{rrrr}22 & 2 & 13 & 46\end{array}$ | $\begin{array}{llll}0 & 0 & 9 \\ 0 & 4 & 6\end{array}$ | $\begin{array}{llll}2 & 2 & 23 \\ 2 & 6 & 19\end{array}$ | $\begin{array}{lll}4 & 0 & 39 \\ 4 & 4 & 36\end{array}$ | $\begin{array}{llll}5 & 2 & 52 \\ 6 & 5 & 49\end{array}$ | $\begin{array}{llll}8 & 1 & 9 \\ 8 & 5 & 6\end{array}$ | $\begin{array}{lll}10 & 3 & 22 \\ 10 & 7\end{array}$ | $\begin{array}{ll}12 & 5 \\ 12 & 35 \\ 12 & 9\end{array}$ | 14352 | $\begin{array}{llll}16 & 6 & 5\end{array}$ | 18422 |
| 201526 | 221 ? 39 | $\begin{array}{llll}0 & 4 & 8\end{array}$ | 2 10 1 | $\begin{array}{r}4 \\ 4 \\ 4 \\ \hline\end{array}$ |  | $\begin{array}{lll}8 & 5 & 6 \\ 8 & 9 & 2\end{array}$ | $\begin{array}{ll}10 & 7 \\ 10 & 7 \\ 10 & 1 \\ 1 & 19\end{array}$ | $\begin{array}{llll}12 & 9 & 32 \\ 12 & 13 & 29\end{array}$ | 14 $1+1949$ 14 | $\begin{array}{rrrr}16 & 10 & 2 \\ 16 & 13 & 58\end{array}$ | $\begin{array}{lllll}18 & 8 & 15 \\ 18 & 12 & 15\end{array}$ |
| 201922 | 222136 | 01159 | 21412 | 41229 | 61046 61442 | 81259 | 10 10 1512 | 121329 121725 | 141145 141542 | 16161358 16 16 | 181215 181612 |
| 202319 | 227532 | 01556 | 2189 | 41625 | 61839 | 81655 | 10199 | 122122 | 141938 | 162151 | $\begin{aligned} & 181612 \\ & 18208 \end{aligned}$ |
| 202716 | 222929 | 01952 | 2225 | 42022 | 6 2235 | 82052 | 10235 | 122518 | 142335 | 162548 | 18245 |
| 203112 |  | 02349 | 2262 | +2419 | 62632 | 82448 | 10272 | 122915 | 142731 | 162945 | 18281 |
| 2035 |  | 02745 | 22958 | 42815 | 63028 | 82845 | 103058 | 123311 | 143128 | 163341 | 183158 |
| $[2039 \quad 5$ |  | 03142 |  | 43212 |  | 83242 | 103455 |  | 143524 |  | 183554 |

First. refer to the map of time zones on p. 245 and translate your own time into Greenwich
Mean Time. Then find the S.T. at noon on your birhday in the following tables. Add to this figure the number of hours you were born after noon, plus 10 seconds for every hour.
(Subtract in both cases if you were born
before noon.) Next, if you were not born on the Greenwich meridian, you convert this
S.T. into the S.T. for your birthplace. Find in an atias the longitude of your birthplace : multiply this figure by four to convert the total into minutes and seconds of time. Add this total (if born east of Greenwich) to the S.T. (or subtract if west) and you have your S.T. at birth. Now you can find your ascendant in a table of houses for your specific latitude.

| Jan. | Feb. | Mar. | April | May | Junc | Julv | Aug. | Sept. | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 183951 | 20424 | 223228 | 03441 | 23257 | 43511 | 63327 | 83540 | 103754 | 123610 | 143823 | 163640 |
| 184347 | 20461 | 223624 | 03837 | 23654 | 4397 | 63724 | 83937 | 104150 | 12407 | 144220 | 164037 |
| 184744 | 204957 | 224021 | 04234 | 24050 | 4434 | 64420 | 84334 | 104547 | 12443 | 144616 | 164433 |
| 185141 | 205354 | 224417 | 04630 | 24447 | 4470 | 64517 | 84730 | 104943 | 12480 | 145013 | 164830 |
| 185537 | 205750 | 224814 | 05027 | 24844 | 45057 | 64914 | 8 5127 | 105340 | 125156 | 14549 | 165226 |
| 185934 | 21147 | 225210 | 05424 | 25240 | 45453 | 65310 | 85523 | 105736 | 125553 | 14586 | 165623 |
| 19330 | $21 \quad 543$ | 22567 | 05820 | 25637 | 45850 | 6577 | 85920 | 11133 | 125950 | 1523 | $17 \quad 019$ |
| 19727 | $21 \quad 940$ | 2304 | 1217 | 3033 | 5246 | 713 | 9316 | 11530 | 13346 | 15559 | 17416 |
| 191123 | 211337 | $23 \begin{array}{lll}23 & 4 & 0\end{array}$ | 1613 | 3430 | $5 \quad 643$ | 750 | 9713 | 11926 | 13743 | 15956 | 17812 |
| 191520 | 211733 | $23 \quad 757$ | 91010 | $\begin{array}{lll}3 & 8 & 26\end{array}$ | 51040 | 78856 | 9119 | 111323 | 131139 | 151352 | 17129 |
| 191917 | 212130 | 231153 | 1146 | 31223 | 51436 | 71253 | 9156 | 111719 | 131536 | 151749 | 17166 |
| 192313 | 212526 | 231550 | 9183 | 31619 | 51833 | 71649 | 9193 | 112116 | 131932 | 152145 | 17202 |
| 192710 | 212923 | 231946 | 12159 | 32016 | 52229 | 72046 | 92259 | 112512 | 132329 | 152542 | 172359 |
| 19396 | 213319 | 232343 | 12556 | 32413 | 52626 | 72443 | 92656 | 11299 | 132725 | 152939 | 172755 |
| 19353 | 213796 | 232739 | 12953 | 3289 | 53022 | 72839 | 93052 | 11335 | 133122 | 153335 | 173152 |
| 193859 | 214112 | 233136 | 93349 | $\begin{array}{ll}321 & 6\end{array}$ | 53419 | 73236 | 93449 | 11372 | 133519 | 153732 | 173548 |
| 194256 | 21459 | 233533 | 9 3746 | 3362 | 53815 | 73632 | 93845 | 114059 | 133915 | 154128 | 173945 |
| 194653 | 21496 | 233929 | 14142 | 33959 | 54212 | 74029 | 94242 | 114455 | 134312 | 154525 | 174341 |
| 195049 | 21532 | 234326 | 14539 | 34355 | 5469 | 74425 | 94638 | 114852 | 13478 | 154921 | 174738 |
| 195445 | 215659 | 234722 | 14935 | 34752 | 5505 | 74822 | 95035 | 115248 | 13515 | 155318 | 175135 |
| 195842 | 22055 | 235119 | 15332 | 35148 | 5542 | 75218 | 95432 | 115645 | 13559 | 155714 | 175531 |
| $20 \quad 239$ | $22 \quad 452$ | 235515 | 15728 | 35545 | 55758 | 75615 | 95828 | 12041 | 135858 | $16 \quad 111$ | 175928 |
| 20635 | $22 \quad 848$ | 235912 | 2125 | 35942 | $6 \quad 155$ | 8012 | 10225 | $12 \quad 438$ | 14254 | $16 \quad 58$ | $18 \quad 324$ |
| 201032 | 221245 | 038 | 2521 | 4338 | 6559 | 848 | 10621 | $12 \quad 834$ | 14651 | 1698 | $18 \quad 721$ |
| 201428 | 221647 | 075 | 2918 | 4735 | 6948 | 885 | 101018 | 121231 | 149047 | 16131 | 181117 |
| 201825 | 222038 | 0111 | 21315 | 41131 | 61344 | 8121 | 101414 | 121627 | 141444 | 161657 | 181514 |
| 202221 | 222435 | 01458 | 21711 | 41528 | 69741 | 81558 | 101811 | 122024 | 141841 | 162054 | 181910 |
| 202618 | 222831 | 01855 | 2218 | 41924 | 62138 | 81954 | 10227 | 122421 | 142237 | 162450 | 18237 |
| 203015 |  | 02251 | 2254 | 42321 | 62534 | 82351 | 10264 | 122817 | 142634 | 162847 | 18274 |
| 203411 |  | 02648 | 2291 | 42717 | 62931 | 82747 | $1030 \quad 1$ | 123214 | 143030 | 163243 | 18310 |
| 20388 |  | 03044 |  | 43114 |  | 83144 | 103357 |  | 143427 |  | 183457 |


| Jan. | Feb. | Mar. | April | May | June | July | Aug | Sepr. | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 183853 | 20417 | 223527 | 03740 | 23556 | 4389 | 63626 | 83839 | 104053 | 12399 | 144122 | 163939 |
| 184250 | 20453 | 223923 | 04136 | 23953 | 4426 | 64023 | 84236 | 104449 | 12436 | 144519 | 164335 |
| 184646 | 20490 | 224320 | 04533 | 24349 | 4463 | 64419 | 84633 | 104846 | 12472 | 144915 | 164732 |
| 185043 | 205256 | 224716 | 04929 | 24746 | 44959 | 64816 | 85029 | 305242 | 125059 | 145312 | 155129 |
| 185440 | 205653 | 225113 | 05326 | 25142 | 45356 | 65212 | 85426 | 105639 | 125455 | 14578 | 165525 |
| 185836 | 21049 | 22559 | 05722 | 25539 | 45752 | 6569 | 8 5822 | 11035 | 125852 | 1515 | 165922 |
| 19233 | 21446 | 22596 | 1119 | 25936 | 51949 | 706 | 9219 | 11432 | 13248 | $15 \quad 5$ | $17 \quad 318$ |
| 19629 | $21 \quad 842$ | $\begin{array}{llll}23 & 3 & 2\end{array}$ | 1516 | 3332 | $5 \quad 545$ | $\begin{array}{llll}7 & 4 & 2\end{array}$ | 9615 | 11828 | 13645 | $15 \quad 858$ | 17715 |
| 191026 | 291239 | 23659 | 1912 | 3729 | $5 \quad 942$ | 7 7 7 159 | 91012 | 1111225 | 131042 | 151255 | 171111 |
| 191422 | 291636 | 231056 | 1139 | 31125 | 51338 | 71155 | 9148 | 111622 | 131438 | 151651 | 17158 |
| $19: 819$ | 212032 | 231452 | 117 | 31522 | 51735 | 71552 | 9185 | 112018 | 131835 | 152048 | 17194 |
| 192295 | 212429 | 231849 | 1212 | 31918 | 52132 | 71948 | 9229 | 112415 | 132231 | 152444 | 17231 |
| 192612 | 212825 | 232245 | 12458 | 32315 | 52528 | 72345 | 92558 | 112811 | 132628 | 152841 | 172658 |
| 19309 | 273212 | 232642 | 12855 | 32711 | 52925 | 72741 | 92955 | 11328 | 133024 | 153237 | 173054 |
| 19345 | 213618 | 233038 | 13251 | 3318 | 53321 | 73138 | 93351 | 11364 | 133421 | 153634 | 173451 |
| 19382 | 214015 | 233435 | 13648 | 335 | 53718 | 73535 | 93748 | 11401 | 133897 | 154031 | 173847 |
| 194158 | 214411 | 233831 | 1 4045 | 3391 | 54114 | 73931 | 94144 | 114357 | 134214 | 154427 | 174244 |
| 194555 | 21488 | 234228 | 14449 | 34258 | 545111 | 74328 | 94541 | 114754 | 134611 | 154824 | 174640 |
| 194951 | 2152 * | 234625 | 14838 | 34554 | 5497 | 74724 | 94937 | 115151 | 1350 | 155220 | 175037 |
| 195348 | 21561 | 235021 | 15234 | 35051 | 553 | 75121 | 95334 | 115547 | 13544 | 155617 | 175434 |
| 195744 | 215958 | 235418 | 15631 | 35447 | 5571 | 75517 | 95730 | 115944 | 1358 | 15013 | 175830 |
| 20141 | $22 \quad 354$ | 235814 | $\begin{array}{llll}2 & 0 & 27\end{array}$ | 35844 | $\begin{array}{llll}6 & 0 & 57\end{array}$ | 75914 | $10 \quad 127$ | 12 3 10 <br> 12 7  | 14157 | 16 4 10 | $18 \quad 227$ |
| $20 \quad 538$ | $22 \quad 751$ | 0211 | $\begin{array}{lll}2 & 4 & 24\end{array}$ | 4240 | 6454 | 8310 | $10 \quad 524$ | $\begin{array}{llll}12 & 7 & 37\end{array}$ | $14 \quad 553$ | 1686 | 18623 |
| 20934 | 221147 | $\begin{array}{rr}0 & 6 \\ 0 & 7\end{array}$ | $\begin{array}{llll}2 & 8 & 20\end{array}$ | $\begin{array}{lll}4 & 637\end{array}$ | 6 8 85 | 877 | $10 \quad 920$ | 121133 | 14950 | 16123 | 181020 |
| 201331 | 221544 | 0104 | 21217 | 41034 | E 9247 | 8194 | 101317 | 121530 | 141346 | 16160 | 181416 |
| 201727 | 221940 | 0140 | 21613 | 41430 | -1643 | 8150 | 10:713 | 121926 | 141743 | 1619 5ó | 181813 |
| 202124 | 222337 | 0 0 0 757 | 22010 | 41827 | 62040 | 81857 | 102910 | 122323 | 142139 | 152353 | 18229 |
| 202520 | 222733 | 02153 | 2247 | 42223 | 62436 | 82253 | 10256 | 122719 | 142536 | 162749 | 18266 |
| 202917 | 223130 | 02550 | 2283 | 42620 | 62833 | a 2650 | 1029 | 123116 | 142933 | 163146 | 18303 |
| 203313 |  | $\bigcirc 2947$ | 2320 | 43016 | 63230 | 83046 | 103259 | 123513 | 143324 | 163542 | 183359 |
| 203710 |  | 03343 |  | 43413 |  | 83443 | 103656 |  | 143726 |  | 183756 |

1904

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 18 | 20 | 223825 | 040 | 23855 |  |  |  |  |  |  |  |
|  | 1849 | 205159 | 224222 | 04435 | 24252 | 445 | 643 | 84535 | 1047 | 12 | 14 | 164634 |
|  |  | 205555 | 224619 | 04832 | 24648 | 4492 |  |  |  |  | 145214 |  |
|  | 18 | 205 |  | 05228 | 25045 | 45258 45655 | 65115 | 5328 | 105541 1059 | 125358 1257 | 145611 150 | 165428 165824 |
|  | 19 | 21 | 2254 | 056 |  |  | 655 659 | $\begin{array}{r} 5725 \\ 121 \end{array}$ |  | $1 \begin{aligned} & 12 \\ & 13 \\ & 13 \\ & 1\end{aligned}$ |  | 177281 |
|  | 19 |  | 2258 | $\begin{array}{ll}10 \\ 1 & 0 \\ 1 & 18 \\ 1\end{array}$ | $\begin{array}{r}25838 \\ 3 \\ \hline\end{array}$ | $\begin{array}{ll}5 & 0 \\ 5 & 41 \\ 5 & 48\end{array}$ | 659 7 7 | ${ }^{1} 218$ | $11 \begin{aligned} & 11 \\ & 11 \\ & 71\end{aligned}$ | 13 13 <br> 13 51 <br> 17  | 15 | 17 |
|  |  | 211141 | 232 |  |  |  | 77 | 914 | 111927 | 13944 | 15 | 1710 |
| 10 | 1913 | 211538 | $\begin{array}{ll}23 & 6 \\ 23 \\ 23 & 9\end{array}$ | 18814 1 1 12 | 3 631  <br> 3 10 28 | 51241 | 71058 | 91311 | 111524 | 131340 | 1515 | 1714 |
|  | 1921 | 212331 | 2313 | 116 | 314 | 51637 |  |  | 1920 | 131737 | 1519 | 17187 |
|  | 1925 | 212728 | 231751 | 120 | 31821 | 52034 | 71851 | 921 | 1123 | 132134 | 15 | 22 |
|  | 1929 | 2131 | 2321 | 24 |  |  | 72247 | 925 | 1127 | 132530 | 1527 | 726 |
|  | 1933 | 213521 | 23254 | 12757 | 326 | 52827 | 72644 | 2857 | 113110 | 132927 | 1531 | 172957 |
|  | 1937 | 2139 |  |  | 33010 | 53224 | 73040 | 3254 | 1135 | 133323 | 1535 | 73353 |
|  | 1941 | 2143 | 2333 | 135 | 334 | 536 |  |  | 11393 | 1337 |  |  |
|  | 19 |  | 337 | 13947 | 3383 | 540 | 738 | 94047 | 11430 | 1341 | 1543 | 74146 |
| 18 | 19 | 2159 | 234130 | 143 | 42 | 544 |  |  | 11 | 1345 |  |  |
|  | 1952 | 2155 | 234527 | 147 | 34557 | 54810 | 746 | 4840 | 1150 | 1349 | 1551 |  |
| 20 | 1956 | 21590 | 2349 |  | 49 | 552 | 75023 | 5236 | 11544 | 1353 | 1555 | 175336 |
|  | 20 | 22 | 2353 | 155 | 35350 | 556 | 754 | 5633 | 115846 | $1357{ }^{3}$ | 1559 | 175732 |
|  | 20 | 22 | 235717 | 15930 | 35746 | 60 | 75816 | 10 | 12243 | 14 | 163 |  |
|  | 208 | 221050 |  | 2326 |  | 356 | 8213 |  | 12639 | 14 |  | 18526 |
|  | 2012 | 2214 | $0 \quad 510$ |  | 4539 | 6753 | $8{ }^{6}$ | 10823 | 121036 | 14852 | 16 | 189 |
|  | 2016 | 2218 | 09 | 211 | 936 | 61149 | 810 | 101219 | 121432 | 141249 | 16 | 1813 |
|  | 2020 | 2222 | 013 | 21516 | 41333 | 61546 | 8142 | 101616 | 121829 | 14164 | 161859 | 18 |
|  | 20 |  | 01659 | 21912 | 41729 | 61942 | 81759 | 102012 | 122225 | 142042 | 162255 | 1821 |
| 28 | 20 | 223032 | 020 | 223 | 42126 | 623 | 821 | 1024 | 122622 | 142438 | 162652 | 1825 |
|  | 20 |  | 024 | 227 | 42522 | 6 | 82552 | 1028 | 123018 | 142835 |  | 182 |
|  | 203612 |  | 02849 |  |  |  |  | 1032 | 123415 |  | 163445 |  |
|  | 2040 |  | 03245 |  | 43315 |  | 83345 | 1035 |  | 143628 |  | 183658 |

1906

|  | Jan. | eb. | ar. | A pril | May | Juef | July | Aus. | Sep t . | Ocr. | No.v | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1840 | 20 | 22 | 0 |  | 436 | 63431 | 8 | 5 | 123714 | 143927 | 1637 |
|  | 1844 | 2047 | 223728 | 039 | 23758 | 44011 | 63828 |  | 104254 | 124110 | 144324 | 164140 |
| 3 | 184848 | 2051 | 224124 | 04338 | 24154 | 4447 | 64224 | 84437 | 104650 | 12457 | 144720 | 164537 |
|  | 185244 | 205457 | 224529 | 04734 | 24551 | 448 | 64621 | 84834 | 105047 | 12 | 145117 | 164933 |
|  | 185641 | 205854 | 224918 | 05131 | 24947 | 4520 | 65017 | 85230 | 105444 | 1253 | 145513 | 165330 |
|  | 19037 | 21251 | 225314 | 05527 | 2534 | 45557 | 65414 | 85627 | 105840 | 125657 | 145910 | 165727 |
|  | 19434 | 21.647 | 225711 | 0 5924 | 25740 | 45954 | ${ }_{7} 5810$ | 9024 | 11237 | 13053 | 1536 |  |
| 8 | 19830 | 211044 | 2317 | 320 | 137 | 5350 | 7 |  | 11633 | 13450 | 15 |  |
| 9 | 191227 | 211440 | 235 | 717 | 533 | 5 F 747 | 76 | 9817 | 111030 | 13846 | 15110 | 17916 |
| 10 | 191624 | 211837 | 23.9 | 11113 | 3930 | 51143 | 710 | 91213 | 111426 | 131243 | 151456 | 171313 |
| 11 | 192020 | 212233 | 231257 | 11510 | 31327 | 51540 | 71357 | 91610 | 111823 | 131639 | 151853 | 1717 |
| 12 | 192417 | 212630 | 231653 | 1197 | 31723 | 51936 | 71753 | 920 | 112219 | 132036 | 152249 | 1721 |
| 13 | 192813 | 213026 | 232050 | 1233 | 32120 | 52333 | 72150 | 9243 | 112616 | 132433 | 152646 | 1725 |
| 15 | 193210 | 213423 21 38 | 232447 232843 | 1270 | 32516 | 52729 | 72546 | 9 9759 | 113013 | 132829 | 153042 |  |
|  | 1936 | 213820 | 232843 | 13056 | 32913 | 53126 | 72943 73339 | 93156 | 11349 | 133226 | 153439 | 173256 |
|  | 1940 | 214216 | 233240 | 13453 <br> 13849 <br> 1 | 333 3 | 5 3523 | 73339 73736 | 9 9354 | 1138 | 133622 | 153835 | 173652 |
| 18 | 194359 | 21 2150 | 23 4033 | 14246 | 341 3 | 54316 | 74132 | 94346 | 114559 | 134415 | 154232 154629 | $\begin{aligned} & 174049 \\ & 174445 \end{aligned}$ |
|  | 195153 | 21546 | 234429 | 14642 | 34459 | 54712 | 74529 | 94742 | 114955 | 134812 | 155025 | 174445 |
| 20 | 195549 | 21582 | 234826 | 15039 | 34856 | 5519 | 74926 | 95139 | 115352 | 13528 | 155422 | 175238 |
| 21 | 195946 | 22159 | 235222 | 15435 | 35252 | 5555 | 75322 | 95535 | 115748 | 1356 | 155818 | 175635 |
|  | $20 \quad 342$ | 22555 | 235619 | 15832 | 35649 | 5592 | 75719 | 95932 | 12145 | 140 | 16215 | 18031 |
| 23 | 20739 | 22 9 52 | 0015 | 2229 | 4045 | 6259 | 8115 | 10328 | 12542 | 14358 | 16611 | 18428 |
| 24 | 201135 | 221349 | O 412 | 2.625 | 4838 | 6.65 | $\begin{array}{ll}8 & 5 \\ 8 & 12\end{array}$ | 10725 | 12938 | 14755 | 16108 | 18825 |
| 25 | 201532 | 221745 | 089 | 21022 | 4838 | 61052 | 898 | 101122 | 121335 | 141151 | 1614 | 181221 |
| $2{ }_{2}^{20}$ | 201928 | 222142 | 0 0 0 125 | ${ }_{2} 11418$ | 4 41235 4 | 61448 6 | 8135 | 101518 | 121731 | 141548 | 16181 | 181618 |
| 27 | 202325 | 222538 | 0162 | 21815 | 41631 | 61845 | 8171 | 101915 | 122128 | 141944 | 162158 | 182014 |
|  | 202722 203118 20 | 222935 | 01958 02355 | ${ }_{2}^{2} 2211$ | 42028 | 62241 62638 | 82058 | 102311 | 122524 | 142341 | 162554 | 182411 |
| $29$ | 203118 |  | 02355 | 2268 | 42425 | 62638 | 82455 | 1027 | 122921 | 142737 | 162951 | 1828 |
| 30 | 203515 |  | 02751 | 230 | 42821 | 63034 | 82851 | 1031 | 123317 | 143134 | 163347 | 1832 |
|  | 203911 |  | 03148 |  | 43218 |  | 83248 | 1035 |  | 143531 |  | 1836 |

1907

|  | Jan. | Feb. | Mar. | April |  |  | Jut |  | ept |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  | 10380 |  |  |  |
|  | 18 | 2046 |  | 038 | 237 |  |  | 83943 | 104156 | 124013 | 144226 | 164043 |
|  | 184750 | 2050 | 224027 | 04240 | 24057 | 44310 | 64127 | 84340 | 104553 | 124410 | 144623 | 4439 |
|  | 185147 | 2054 | 224423 | 04637 | 24453 | 447 | 645 | 84736 | 104950 | 12486 | 145019 | 164836 |
|  | 185543 | 205757 | 224820 | 05033 | 24850 | 451 | 64920 | 85133 | 105346 | 12523 | 1454 | 165233 |
|  | 185940 | 21153 | 225217 | 05430 | 25246 | 455 | 65316 | 855 | 105743 | 125559 | 1458 | 1656 |
|  | 19336 | 21 <br> 21 <br> 21 <br> 80 | 225613 23 0 | 05826 | 25643 | 45856 | 65713 | 859 |  | 125956 |  | 17026 |
|  | $\begin{array}{ccc} 19 & 7 & 33 \\ 19 & 19 & 29 \end{array}$ | $\begin{aligned} & 21946 \\ & 21 \\ & \hline 1343 \end{aligned}$ | 23 23 23 4 |  | 4 | 53 |  | 23 | 11536 | 13352 |  | 17 |
|  | 191526 | 2117 | ${ }_{23}{ }^{2} 818$ |  | 3833 | 510 | 7 7 7 9 | 9 <br> 9 <br> 9 <br> 1919 | 1119322 | 13 13 13149 |  |  |
|  | 191923 | 212136 | 231159 | 11412 | 31229 | 5144 | 71259 | ${ }^{9} 11512$ | 111725 | 131145 131542 | 151359 151755 | 171215 |
|  | 192319 | 212532 | 231556 | 1189 | 31626 | 51839 | 71656 | 9 919 | 112122 | 1319 | 152152 | 17 |
|  | 192716 | 212929 | 231952 | 122 | 32022 | 52235 | 72052 | 923 | 112519 | 132335 | 1525 | 1724 |
| $\begin{aligned} & 14 \\ & 15 \end{aligned}$ | 193112 | 213326 213722 | 232349 | 126 | 32419 | 526 | 72449 | 9 27 | 112915 | 132732 | 1529 | 17282 |
| 18 | 1939 | 2141 | 233942 | 13 | 32815 33212 | 53 | 728 | 93058 <br> 93455 <br> 98 | 113312 1137 117 | 133128 | 1533 |  |
|  | 1943 | 2145 | 233539 | 13752 | 3368 | 53822 | 73638 | 9 93455 | 11419 | 13 | 153738 154135 | 17735 |
| 18 | 194659 | 2149 | 233935 | 14148 | 3405 | 54218 | 74035 | 9 4248 | 1145 | 134318 | 154531 | 1743 |
| 19 | 195055 | 2153 | 234332 | 14545 | 3442 | 54615 |  | 4645 | 114858 | 134714 | 154928 | 17 |
|  | 195452 | 2157 | 234728 | 14941 | 34758 | 55011 | 74828 | 95041 | 115254 | 1351 | 155324 | 751 |
|  | 195848 |  | 235125 | 15338 | 351 | 554 | 75225 | 95438 | 115651 | 13558 | 155721 | 175537 |
|  | $\begin{array}{lll} 20 & 2 & 45 \\ 20 & 6 & 49 \end{array}$ | 22 | 235521 | 15735 | 35551 | 558 | 75621 | 95834 | 12048 | 13594 | 1616 | 175934 |
|  | 20 20 ¢ 41 | 2212 |  | $\begin{array}{lll}2 & 1 & 31 \\ 2 & 5 & 28 \\ & \end{array}$ | 35 |  | 8  <br> 8  <br> 8 018 | 10231 | $\begin{array}{llll}12 & 4 & 44 \\ 12\end{array}$ | 14381 | 16514 | $\begin{array}{lll}18 & 3 & 31 \\ 18\end{array}$ |
|  | 201434 | 221648 | 0711 | 924 | 7 | 6558 6 6 |  | 10  <br> 10 6 <br> 10 27 <br> 1  | 12 |  | 16 | 18727 |
|  | 201831 | 2220 | 011 | 21321 | 41137 | 61351 | 8127 |  | 121634 |  |  |  |
|  | 202228 | 2224 | 015 | 217 | 11534 | 61747 | 8164 | 101817 | 122030 | 1414 | 1617 | 18 |
|  | 202624 | 222837 | 019 | 221 | 41931 | 621 | 820 | 1022 |  | 142243 |  | 188 |
|  | 203021 203417 2 |  | 02257 |  | 42327 | 62 | 823 | 102610 | 2823 | 142640 | 162853 | 182710 |
|  | 203 |  | - 3050 |  |  |  |  | 1030 | 133220 | 143037 | 163250 | 1831 |
|  | 20 |  |  |  |  |  | 83150 | 1034 |  | 143433 | 16325 | 1835 |


| $n$. | Feb. | Ma | Ap | M3) | June | July | A | Sep | Oce | Nov | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18390 | 204113 | 223533 | 03746 | 2363 | 43816 | 63633 | 83846 | 104059 | 123916 | 144129 | 163946 |
| 184256 | 20459 | 223929 | 04143 | 23959 | 44212 | 64029 | 84242 | 104456 | 124312 | 144525 | 164342 |
| 184653 | 20496 | 224326 | 04539 | 24356 | 4469 | 64426 | 84639 | 104852 | 12479 | 144922 | 164739 |
| 185049 | 2053 3 | 224723 | 04936 | 24752 | 4506 | 64922 | 85036 | 105249 | 12515 | 145319 | 165135 |
| 185446 | 205659 | 225119 | 05332 | 2514 | 4542 | 65219 | 85432 | $1056+15$ | 12552 | 145715 | 165532 |
| 185842 | 21056 | 225516 | 05729 | 25545 | 45759 | 65615 | 85829 | 11042 | 125858 | $15 \quad 112$ | 165928 |
| 19239 | 21452 | 225912 | $1+25$ | 25942 | $\begin{array}{llll}5 & 1 & 55 \\ 5 & 5\end{array}$ | 7012 | 9225 | 11438 | 13255 | $15 \quad 58$ | 17325 |
| 19636 | 21849 | 2330 | 1522 | 3 3 39 | $5 \quad 552$ | 7489 | 9622 | 11835 | 13 - 52 | 1595 | 17721 |
| 191032 | 211245 | 23.75 | 1919 | 3 3 | 5948 | 7 7 7 7 | 91018 | 111232 | 131048 | 15939 | 171918 |
| 191429 | 211642 | 23112 | 11315 | 31132 | 51345 | 712 | 99415 | 111628 | 131445 | 151658 | 171515 |
| 191825 | 212038 | 231458 | 11712 | 31528 | 51742 | 71558 | 91811 | 112025 | 131841 | 152054 | 171911 |
| 192222 | 212435 | - 231855 | 1218 | 31925 | 52138 | 71955 | 9228 | 11 2421 | 132238 | 152451 | 17238 |
| 192618 | 212632 | 232252 | 1255 | 32321 | 52535 | 72351 | 926 | 112818 | 132634 | 152848 | 17274 |
| 193015 | 213228 | 232648 | 1291 | 32718 | 52931 | 72748 | 9301 | 113214 | 133039 | 153244 | 17311 |
| 193419 | 213625 | 233045 | 13258 | 33114 | 53328 | 73144 | 93358 | $1136: 1$ | 133427 | 153641 | 173457 |
| 19388 | 214021 | 233441 | 13654 | 33511 | 53724 | 73541 | 93754 | 1140 | 133823 | 154037 | 173854 |
| 19425 | 214498 | 233838 | 14051 | 3398 | 54121 | 73938 | $\bigcirc 4151$ | 1144 | 134221 | 154434 | 174250 |
| 19461 | 214814 | 234234 | 14447 | 3434 | 54517 | 74334 | 94547 | 11480 | 134617 | 154830 | 174647 |
| 194958 | 215211 | 234631 | 14844 | $\begin{array}{llll}3 & 47 \\ 3 & 1\end{array}$ | 54914 | 74731 | 94944 | 115157 | 135014 | 155227 | 175044 |
| 195354 | 21567 | 235027 | 15241 | 35057 | 55311 | 75127 | 95340 | 115554 | 135410 | 155623 | 175440 |
| 195751 | 2204 | 235424 | 15637 | 35454 | 5577 | 75524 | 95737 | 115950 | 13587 | 16020 | 175837 |
| 20147 | $22 \begin{array}{lll}4 & 1\end{array}$ | 235821 | 034 | 35850 | 614 | 75920 | 10134 | 12347 | 142 | 16497 | $18 \quad 233$ |
| 20544 | 2222 7 | 0 0 17 | 430 | 4247 | 650 | $8 \quad 317$ | $10 \quad 530$ | 12743 | 1460 | 16813 | 18630 |
| 20.940 | 221154 | 0614 | 2827 | 4643 | 6 <br> 6 <br> 8 | $\begin{array}{lllll}8 & 7 & 13 \\ 8\end{array}$ | $10 \quad 927$ | 121140 | 14956 | 161210 | 181026 |
| $20 \leqslant 337$ | 221550 | 01010 | 21223 | 41040 | 61253 | 81110 | 101323 | 121536 | 141353 | 16166 | 181423 |
| 201734 | 221947 | 0147 | 21620 | 49437 | 61650 | 8157 | 101720 | 121933 | 141750 | $1620{ }^{16}$ | 181819 |
| 202130 | 222343 | $\begin{array}{llll}0 & 18 \\ 0 & 3\end{array}$ | 22017 | 41833 | 62046 | 8193 | 102116 | 122329 | 142146 | 162359 | 182216 |
| 202527 | 222740 | 0220 | 22413 | 42230 | 62443 | 8230 | 102513 | 122726 | 142543 | 162756 | 182613 |
| 202923 | 223136 | 02556 | 22810 | 42626 | 62840 | 82656 | 1029 | 123123 | 942939 | 163152 | 18309 |
| 203320 |  | 02953 | 232 | 43023 | 63236 | 83059 | 1033 | 123519 | 143336 | 163549 | 18346 |
| 203716 |  | 03350 |  | 43419 |  | 83449 | 1037 |  | 143732 |  | 18382 |


| n. | Feb. | Mar. | Apr | May | Jur | July | Aug | Sed | Oct | Nav | Dec |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184159 | 204412 | 223436 | 03649 | 2355 | 43719 | 63535 | 83749 | $1040 \quad 2$ | 123818 | 144032 | 163848 |  |
| 184555 | 20489 | 223832 | 04045 | 2392 | 44115 | 63932 | 84145 | 10 - 3 38 | 124215 | 144428 | 164245 |  |
| 184952 | 20525 | 224229 | 04442 | 24259 | 44512 | 64329 | 84542 | 104755 | 124612 | 144825 | 164641 | 3 |
| 185349 | 20562 | 224625 | 04838 | 24655 | 4498 | 64725 | 84938 | 105152 | 12508 | 145221 | 165038 |  |
| 185745 | 205958 | 225022 | 05235 | 25052 | 4535 | 65122 | 85335 | 105548 | 12545 | 145618 | 165435 | 5 |
| 19142 | 21 3 55 | 225418 | 05632 | 25448 | 4571 | 65518 | 85731 | 105945 | 1258 | 15014 | 165831 | 6 |
| $19 \quad 538$ | 21751 | 225815 | 1028 | 25845 | 5058 | 65915 | 9128 | 11341 | 13158 | 15411 | $17 \quad 228$ |  |
| $19 \quad 935$ | 211148 | $23 \quad 212$ | 1425 | 32241 | 5455 | 7311 | 9525 | 11738 | $13 \quad 554$ | 15888 | 17624 | 8 |
| 191331 | 211545 | 2368 | + 821 | 3 3 638 | 58851 | 778 | 9921 | 111934 | $13 \quad 951$ | 15124 | 171021 | 8 |
| 191728 | 211941 | 23105 | 19218 | 31034 | 51248 | 7114 | 91318 | 111531 | 131347 | 15161 | 171417 | 10 |
| 192124 | 212338 | 23141 | 91614 | 31431 | 51644 | 7151 | 91714 | 111927 | 131744 | 151957 | 171814 | 11 |
| 192521 | 212734 | 231758 | 12011 | 31828 | 52041 | 71858 | 92111 | 112324 | 132141 | 152354 | 172210 | 12 |
| 192918 | 213131 | 232154 | 1247 | 32224 | ${ }_{5}^{5} 2437$ | 72254 | 9257 | 112721 | 132537 | 152750 | 17267 | 13 |
| 193314 | 213527 | 232551 | 1284 | 32621 | 52834 | 72651 | 9294 | 113117 | 132934 | 153147 | 1730 | 14 |
| 193711 | 213924 | 232947 | 132 9 | 3 3017 | 53230 | 73047 | 9330 | 113514 | 133330 | 153543 | 17340 | 15 |
| 19417 | 214320 | 233344 | 13557 | 33414 | 53627 | 73444 | 93657 | 113910 | 133727 | 153940 | 173757 | 16 |
| 19454 | 214717 | 233740 | 13954 | 33810 | 54024 | 73840 | 94054 | 11437 | 134123 | 154337 | 174153 | 17 |
| 19490 | 215114 | 234137 | 14350 | 3427 | 54420 | 74237 | 94450 | 11473 | 134520 | 154733 | 174550 | 18 |
| 195257 | 215510 | 234534 | 14747 | 3463 | 54817 | 74633 | 94847 | 11590 | 134916 | 155130 | 174946 | 19 |
| 195653 | 21597 | 234930 | 15143 | 350 | 55213 | 75030 | 95243 | 115456 | 135313 | 155526 | 175343 | 20 |
| 20050 | $22 \begin{array}{lll}22 & 3\end{array}$ | 235327 | 15540 | 35357 | 55610 | 75427 | 95640 | 115853 | 135710 | 155923 | 175740 | 21 |
| $20 \quad 447$ | $22 \quad 70$ | 235723 | 15936 | 35753 | 606 | 75823 | 10036 | 12249 | 1416 | $16 \quad 319$ | $18 \quad 136$ | 22 |
| $20 \quad 843$ | 221056 | 0120 | 2333 | 4150 | 643 | 8220 | 10433 | 12646 | $14 \quad 5 \quad 3$ | 16716 | $18 \quad 533$ | 23 |
| 201240 | 221453 | 0516 | 2730 | 4546 | 6 759 | 8616 | $10 \quad 829$ | 121443 | 14859 | 161112 | 18929 | 24 |
| 201636 | 221849 | $0{ }^{0} 913$ | 21126 | 4943 | 61156 | 81013 | 101226 | 121439 | 141256 | 16159 | 181326 | 5 |
| 202033 | 222246 | 0139 | 21523 | 41339 | 61553 | 8149 | 101623 | 121836 | 141652 | 1619 | 181722 | 26 |
| 202429 | 222643 | 0176 | 21919 | 41736 | 61949 | 8186 | 102019 | 122232 | 142049 | 16232 | 182919 | 27 |
| 202826 | 223039 | 0213 | 22316 | 42132 | 62346 | 8222 | 102416 | 122629 | 142445 | 162659 | 182515 | 28 |
| 203222 |  | 02459 | 22712 | 42529 | 62742 | 82559 | 102812 | 123025 | 142842 | 163055 | 182912 | 29 |
| 203619 |  | 02856 | 2319 | 42926 | 63139 | 82956 | 10329 | 123422 | 143239 | 163452 | 18339 | 30 |
| 204016 |  | 03252 |  | 43322 |  | 83352 | 10365 |  | 143635 |  | 1837 | $3 ;$ |


| 1 an . | Feb. | Mar | Ap | May | Jun | July | Aug | Sept | Ocr | Nov | Dee. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18412 | 204315 | 223338 | 03552 | 2348 | 43622 | 63438 | 83652 | 1039 | 123721 | 143935 | 163751 |  |
| 184458 | 204711 | 223735 | 03948 | 2385 | 44018 | 63835 | 84048 | 10431 | 124118 | 144331 | 164148 | 2 |
| 184855 | 20518 | 224132 | 04345 | 2421 | 44415 | 64231 | 84445 | 104658 | 124514 | 144728 | 164544 | 3 |
| 185251 | 2055 | 224528 | 04741 | 24558 | 44811 | 64628 | 84841 | 105054 | 124911 | 145124 | 164941 |  |
| 185648 | 2059 9 | 224925 | 05138 | 24954 | 4528 | 65024 | 85238 | 105451 | 12538 | 145521 | 165337 |  |
| 19044 | 21258 | 225321 | 05534 | 25351 | 4564 | 65421 | 85634 | 105848 | 1257 | 145917 | 165734 | 6 |
| 19441 | 29654 | 225718 | 05931 | 25748 | 501 | 65818 | 9031 | 11244 | 131 | 15314 | $17 \quad 131$ | 7 |
| 19838 | $21105 i$ | 23114 | 1327 | $\begin{array}{ll}3 & 144\end{array}$ | $5 \begin{array}{lll}5 & 3 & 57\end{array}$ | 7214 | 9427 | 11641 | $13 \quad 457$ | 15710 | 17527 | d |
| 191234 | 211447 | 23511 | 1724 | 3541 | 5754 | $7 \quad 611$ | 9824 | 111037 | $13 \quad 854$ | 1511 | 17924 | 9 |
| 191631 | 211844 | $23 \quad 97$ | 11121 | 3 C 37 | 51151 | 710 | 91221 | 111434 | 131250 | 1515 | 171320 | 10 |
| 192027 | 212240 | 2313 | 11517 | 31334 | 51547 | 7144 | 91617 | 111830 | 131647 | 15190 | 171717 | 11 |
| 192424 | 212637 | 2317 i | 11914 | 31730 | 51944 | 7180 | 92014 | 112227 | 132043 | 152257 | 172113 | 12 |
| 192820 | 213034 | 232057 | 12310 | 32127 | 52340 | 72157 | 92410 | 112623 | 132440 | 152653 | 172510 | 13 |
| 193217 | 213430 | 232454 | 127 | 32523 | 52737 | 72554 | 928 | 113020 | 132837 | 153050 | 17296 | 14 |
| 193613 | 213827 | 232850 | 1313 | 32920 | 53133 | 72950 | 932 | 113416 | 133233 | 153446 | 1733 | 15 |
| 194010 | 214223 | 233247 | 1350 | 33317 | 53530 | 73347 | 9360 | 113813 | 133630 | 153843 | 1737 0 | 15 |
| 19447 | 214620 | 233643 | 13856 | 33713 | 53926 | 73743 | 93956 | 114210 | 134026 | 154239 | 174056 | 17 |
| 19483 | 295016 | 234040 | i 4253 | 34110 | 54323 | 74140 | 94353 | 11466 | 134423 | 154636 | 174453 | 18 |
| 19520 | 215413 | 234436 | 14650 | 3456 | 54720 | 74536 | 94750 | 11503 | 134819 | 155033 | 174849 | 19 |
| 195556 | 2158 | 234833 | 15046 | 3493 | 55116 | 74933 | 95146 | 115359 | 135216 | 155429 | 175246 | 20 |
| 195953 | 2226 | 235230 | 15443 | 35259 | 55513 | 75329 | 95543 | 115756 | 135612 | 155826 | 175642 | 31 |
| $20 \quad 349$ | 226 | 235626 | 15839 | 35656 | 5599 | 75726 | 95939 | 12152 | 1409 | 16222 | 18039 | 22 |
| 20746 | 23959 | 0023 | 2236 | 4052 | 636 | 88123 | 10336 | $12 \quad 549$ | 1446 | 16619 | 18436 | 23 |
| 201142 | 22 ¢3 56 | 0419 | 2632 | 4449 | 672 | 8519 | 10732 | 12945 | 1482 | 161015 | $18 \quad 832$ | 2.4 |
| 201539 | 221752 | 0816 | 21029 | 4846 | 61059 | $8 \quad 916$ | 101129 | 121342 | 141159 | 161412 | 181229 | 25 |
| 201936 | 222149 | 01212 | 21425 | 41242 | 61455 | 81312 | 101525 | 121739 | 141555 | 16188 | 181625 | 26 |
| 202332 | 222545 | 016 | 21822 | 41639 | 61852 | 8179 | 101922 | 122135 | 141952 | 16225 | 182022 | 27 |
| 202729 | 222942 | 020 | 222 | 42035 | 62249 | 8215 | 102319 | 122532 | 142348 | 16262 | 182418 | 28 |
| 203125 |  | 0242 | 2261 | 42432 | 62645 | 8252 | 102715 | 122928 | 142745 | 162958 | 182815 | 29 |
| 203522 |  | 02759 | 23012 | 42828 | 63042 | 82858 | 103112 | 123325 | 143141 | 163355 | 183211 | 30 |
| 203918 |  | 03155 |  | 43225 |  | 83255 | 1035 |  | 143538 |  | 18368 | 31 |



1912

|  | $n$. | Feb. | Mar. | Ap | Ma | Ju | july | Aus | Sep | Oct | Nov | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 18398 | 204121 | 223541 | 03754 | 23619 | 43824 | 63641 | 83854 | 1041 | 123924 | 144137 | 163954 |
| 2 | 18434 | 204517 | 223938 | 04159 | 2407 | 44229 | 64037 | 84251 | 1045 | 124320 | 144534 | 164350 |
| 3 | $1847 \quad 1$ | 204914 | 224334 | 04547 | 244 | 44617 | 64434 | 84647 | 10490 | 124717 | 144930 | 164747 |
| 4 | 185057 | 205311 | 224731 | 04944 | 2480 | 45014 | 64830 | 85044 | 105257 | 125114 | 145327 | 165143 |
| 5 | 185454 | 20577 | 225127 | 05340 | 25157 | 45410 | 65227 | 85440 | 105653 | 125510 | 145723 | 165540 |
| 6 | 185850 | 211 | 225524 | 05737 | 25554 | 4587 | 65624 | 85837 | 11050 | 1259 | 15920 | 165937 |
| 7 | $19 \quad 247$ | 2150 | 225920 | 1133 | 25950 | $5 \quad 23$ | 7020 | 9233 | 11447 | 13 | $15 \quad 516$ | $17 \begin{array}{ll}17 & 3 \\ 17\end{array}$ |
| 8 | 19643 | $21 \quad 857$ | $\begin{array}{llll}23 & 3 & 17\end{array}$ | 1530 | $3 \quad 347$ | $5{ }_{5}^{5} 60$ | $\begin{array}{lll}7 & -17\end{array}$ | 963 | $\begin{array}{lll}11 & 8 & 43\end{array}$ | 1370 | 15913 | $17 \quad 730$ |
| 9 | 191040 | 211253 | $23 \quad 713$ | 1927 | $\begin{array}{llll}3 & 7 & 43\end{array}$ | 5956 | 7813 | 91027 | 111240 | 131056 | 151310 | 171926 |
| 10 | 191437 | 211650 | 231110 | 11323 | 31140 | 59353 | 71210 | 91423 | 119636 | 131453 | 15176 | 171523 |
| 11 | 191833 | 212046 | 23156 | 11720 | 31536 | 51750 | 7166 | 91820 | 112033 | 131849 | 15213 | 171919 |
| 12 | 192230 | 212443 | 2319 | 12116 | 31933 | 52146 | 7203 | 92216 | 112429 | 132246 | 152459 | 172316 |
| 13 | 192626 | 212840 | 23230 | 12513 | 32329 | 52543 | 72359 | 92613 | 112826 | 132643 | 152856 | 172713 |
| 94 | 193023 | 213236 | 232656 | 1299 | 32726 | 52939 | 72756 | 9309 | 113222 | 133039 | 153252 | 17319 |
| 15 | 193419 | 213633 | 233053 | 1336 | 33123 | 53336 | 73153 | 9346 | 113619 | 133436 | 153649 | 17356 |
| 16 | 193816 | 214029 | 233449 | 1372 | 33519 | 53732 | 73549 | 9382 | 194016 | 133832 | 154045 | 17392 |
| 17 | 194212 | 214426 | 233846 | 14059 | 33916 | 54129 | 73946 | 94159 | 114412 | 134229 | 154442 | 174259 |
| 18 | 1946 | 214822 | 234242 | 14456 | 34312 | 54526 | 74342 | 94556 | 11489 | 134625 | 154839 | 174655 |
| 19 | 19506 | 215219 | 234639 | 14852 | 3479 | 54922 | 74739 | 94952 | 11525 | 135022 | 155235 | 175052 |
| 20 | $1954 \quad 2$ | 215615 | 235035 | 15249 | 3515 | 55319 | 75935 | 95349 | 19562 | 135418 | 155632 | 175448 |
| 29 | 195759 | $\begin{array}{lll}22 & 012\end{array}$ | 235432 | 15645 | $355 \quad 2$ | 55715 | 75532 | 95745 | 115958 | 135815 | 16028 | 175845 |
| 22 | 30155 | 224 | 235829 | 2042 | 35858 | $6 \quad 112$ | 75929 | $10 \quad 142$ | $12 \quad 355$ | 14212 | 16425 | $18 \quad 242$ |
| 23 | $20 \quad 552$ | 228 | 0225 | 2438 | 4255 | 658 | 8325 | $10 \quad 538$ | 12751 | 1468 | 16821 | 18638 |
| 24 | 20948 | 22122 | 0622 | 2835 | 4.652 | 6 6 95 | 8722 | 10935 | 121148 | 14105 | 161218 | 181035 |
| 25 | 201345 | 221558 | 01018 | 21231 | 49048 | 6 6 131 | 81118 | 10.1331 | 121545 | 14141 | 161614 | 181431 |
| 20 | 201741 | 221955 | 01415 | 21628 | 41445 | 61658 | 81515 | 109728 | 121941 | 141758 | 162011 | 189828 |
| 27 | 202138 | 222359 | 07811 | 22025 | 41841 | 62055 | 81911 | 102125 | 122338 | 142754 | 16248 | 182224 |
| 28 | 202535 | 222748 | 0228 | 22421 | - 42238 | 62459 | 8238 | 102527 | 122734 | 142551 | 1628 | 182621 |
| 29 | 202931 | 223144 | 026 | 22818 | 42634 | 62848 | 827 | 102918 | 123131 | 142947 | 15321 | $\begin{array}{ll}18 & 3017\end{array}$ |
| 30 | 203328 |  | 030 | 23214 | 43031 | 63244 | 831 ? | 103314 | 123527 | 143344 | 163557 | 183414 |
| 31 | 203724 |  | 03358 |  | 43427 |  | 83458 | 103711 |  | 143741 |  | 183811 |

1913

| 3 | Jan. | Feb. | Mar. | April | May | June | uly | Aug. | Sepr. | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1842 | 204420 | 223444 | 03657 | 23514 | 43727 | 63544 | 83757 | 104010 | 123827 | 144040 | 163857 |
| 2 | 18464 | 204817 | 223841 | 04054 | 23910 | 44124 | 63940 | 84154 | 10447 | 124224 | 144437 | 164253 |
| 3 | 1850 | 205214 | 224237 | 04450 | 2437 | 44520 | 64337 | 84550 | 10483 | 124620 | 144833 | 164650 |
| 4 | 185357 | 205610 | 224634 | 04847 | 2473 | 44917 | 64734 | 84947 | 10520 | 125017 | 145230 | 165047 |
| 5 | 185753 19 7 | $\begin{array}{lll}21 & 0 & 7 \\ 21 & 4 & 3\end{array}$ | 225030 | 05243 054 | 25110 2 | 45313 | 651130 65517 | 85343 | 105557 | 125413 | 145626 | 165443 |
| 7 | 19546 | $\begin{array}{ll}21 & 4 \\ 21 & 8\end{array}$ | 225427 | 05640 1036 | 25457 | 45710 | 65527 | 85740 | 105953 | 125810 | 15 | 165840 |
|  | 19943 | 211156 | 23220 | 433 | 3 3 | 55 | 65923 7 | 136 | 19 <br> 11 <br> 11 <br> 7 <br> 18 <br> 46 | $\begin{array}{llll}13 & 2 & 6 \\ 13 & 6 & 3\end{array}$ | $\begin{array}{llll}15 & 4 & 19 \\ 15 & 8 & 16\end{array}$ | $\begin{array}{llll}17 & 2 & 36 \\ 17 & 6 & 33\end{array}$ |
|  | 191340 | 211553 | 23616 | 830 | 3646 | 590 | 7716 | 9 930 | 111943 | 13959 | 151213 | 171029 |
| 10 | 191736 | 211949 | 231013 | 11226 | 31043 | 51256 | 71113 | 91326 | 111539 | 131356 | 1516 | 171426 |
| 19 | 192133 | 212346 | 231410 | ${ }^{1} 1623$ | 31439 | 51653 | 7159 | 91723 | 111936 | 131752 | 1520 | 171822 |
| $\begin{aligned} & 12 \\ & 13 \end{aligned}$ | 192529 | 212743 | 2318 23 23 | 12019 | 31836 3223 | 52049 | 719 | 9 21219 | 112332 | 132149 | 15242 | 172219 |
| 14 | 193322 | 213536 | 232559 | 12812 | 32232 32629 | 5 52446 | 723 | 92516 | 112729 | 132546 | 152759 | 172616 |
| 15 | 193719 | 213932 | 232956 | 1329 | 31026 | 53239 | 75659 73056 | 92912 933 | 1113126 | 1132942 | 153155 153552 | 173012 17349 |
| 16 | 194976 | 214329 | 233352 | 1365 | 33422 | 53635 | 73452 | 937 | 113919 | 133735 | 153948 | 1738 |
| 17 | 194512 | 214725 | 233749 | 1402 | 3 3819 | 54032 | 73849 | 9412 | 114315 | 134132 | 154345 | 17422 |
| 18 | 19499 | 295922 | 234145 | 14359 | 34215 | 54429 | 74245 | 94459 | 114712 | 134528 | 154742 | 174558 |
|  | 19535 | 215518 | 234542 | 14755 | 34612 | 54825 | 74642 | 94855 | 11598 | 134925 | 155138 | 174955 |
| 21 | 1957 | 275915 | 234939 | 15152 | 3508 | 55222 | 75038 | 95252 | 11555 | 135321 | 155535 | 175351 |
| 22 | 20 <br> 20 | $22 \begin{aligned} & 218 \\ & 22\end{aligned}$ | 235335 | $1 \begin{aligned} & 15548 \\ & 15945\end{aligned}$ | 354 3 3 | 55618 $6 \quad 015$ | 75435 75832 | 95648 10 1045 | ${ }_{11}^{11} 59{ }^{12} 9$ | 135718 | 155931 | 175748 |
| 23 | 20851 | 22115 | - 128 | 2341 | 4 4 4 | ${ }_{6}^{6} 411$ | - 828 | 10 10 | 12 12 12 | $\begin{array}{ll}14 & 1 \\ 14 & 5 \\ 14 & 11\end{array}$ | 16 <br> 16 <br> 16 | $\begin{array}{ll}18 & 145 \\ 18 & 5 \\ 1 & 49\end{array}$ |
| 5 | 201248 | 22151 | 525 | 2738 | 4555 | 688 | 8625 | 10838 | 121059 | 1498 | 161121 | 18938 |
| 25 | 201645 202041 | 221858 222254 | $\begin{array}{ll}0 & 9 \\ 0 & 91 \\ 0 & 13 \\ 0\end{array}$ | 21134 | 4959 | 6124 | 81021 | 101234 | 121448 | 14134 | 161518 | 181334 |
| 27 | 202041 | 222254 | 01318 | 21531 | 41348 | 616 | 81418 | 101639 | 121844 | 1417 , | 1619 | 181739 |
| 25 | 202438 | 222651 | $\begin{array}{ll}0 & 17 \\ 0 & 17 \\ 0 & 21 \\ 0\end{array}$ | 21928 22324 | 41744 4 4 | ${ }_{6} 61958$ | 81814 | 102028 | 122241 | 142057 | 162311 | 182127 |
| 29 | 203231 | 223 | - 0257 | 22324 22721 | 42141 42537 | 62354 62751 | 82211 | $102424$ | 122637 | 142454 | 1627 | 182524 |
| 30 | 203627 |  | 029 | 23117 | 42934 | ${ }_{6}^{6} 3147$ | 826 8304 8 | 102821 103217 | 123034 | 142850 | 1631 | 182921 |
| 31 | 204024 |  | 0331 |  | 43311 |  | 834 | 103614 | 123430 | 143247 143644 | 1635 | 183317 |


| n. | Feb. | Ma | AP | M | June | July | Au | Sed | Ocs | Nor | Duc |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184110 | 204323 | 223347 | 0360 | 23417 | 43630 | 63447 | 837 | 103913 | 123730 | 143943 | 380 |  |
| 18457 | 204720 | 223744 | 03957 | 23613 | 44027 | 63843 | 64057 | 104310 | $12+127$ | 144340 | 164156 |  |
| 18493 | 205117 | 224140 | 04353 | 24210 | 44423 | 64240 | 54453 | 1047 | 12 +5 23 | 144736 | 164553 |  |
| 18530 | 205513 | 224537 | 04750 | 2467 | 44820 | 54637 | 84850 | 1051 | 124920 | 145133 | 164950 |  |
| 185656 | 205910 | 224933 | 05146 | 2503 | 45296 | - 5033 | 85246 | 10550 | 125316 | 145529 | 1653 i6 |  |
| 19053 | 2136 | 225330 | 05543 | 2540 | 45613 | E 5430 | 85043 | 105856 | 125713 | 145926 | 165743 |  |
| 19450 | 2173 | 225726 | 05940 | 25756 | 509 | - 5826 | 9039 | 11253 | 1319 | 15323 | 17139 |  |
| 19846 | 211059 | 23123 | 1336 | 3153 | $5{ }_{5}^{5} 46$ | 7223 | 9436 | 11649 | 1356 | 15719 | 17536 |  |
| 191243 | 211456 | $23 \quad 519$ | 1733 | 3549 | $\begin{array}{llll}5 & 8 & 3\end{array}$ | 7 619 | 9833 | 111046 | 1392 | 151116 | 17932 |  |
| 191639 | 211852 | $23 \quad 916$ | 11129 | 3.946 | 51159 | 71016 | 91229 | 111442 | 131259 | 151512 | 171329 |  |
| 192036 | 212249 | 231313 | 11526 | 31342 | 51556 | 71412 | 91626 | 111839 | 131656 | 95199 | 171725 |  |
| 192432 | 212646 | 23179 | 11922 | 31739 | 51952 | 7189 | 92022 | 112235 | 132052 | 1523 | 172122 |  |
| 192829 | 213042 | 23216 | 12319 | 32136 | 52349 | 7226 | 92419 | 112632 | 132449 | 15272 | 172519 |  |
| 193225 | 213439 | $2325 \quad 2$ | 12715 | 32532 | 5 27 45 <br> 5   | 7262 | 92815 | 113029 | 132845 | $15 \leq 058$ | 172915 |  |
| 193622 | 213835 | 232859 | 13112 | 32929 | 53142 | 72959 | 93212 | 113425 | 133242 | 153455 | 173312 |  |
| 194019 | 214232 | 233255 | 1359 | 33325 | 53538 | 73355 | 9369 | 113822 | 133638 | 153852 | 17378 |  |
| 194415 | 214628 | 233652 | 1395 | 33722 | 53935 | 73752 | 9405 | 114218 | 134035 | 154248 | 1741 |  |
| 194812 | 215025 | 234048 | 1432 | 34118 | 54332 | 74148 | 9442 | 114615 | 134431 | 154645 | 17451 |  |
| 19528 | 215429 | 234445 | 14658 | 34515 | 54728 | 74545 | 94758 | 115011 | 134828 | 155041 | 174858 |  |
| 19565 | 215818 | 234842 | 15055 | 34911 | 55125 | 74941 | 95155 | 11548 | 135225 | 155438 | 175255 |  |
| 2001 | $22 \quad 215$ | 235238 | 15451 | 3538 | 55521 | 75338 | 95551 | 11584 | 135621 | 155834 | 175651 |  |
| 20358 | $22 \quad 611$ | 235635 | 15848 | 3575 | 55918 | 75735 | 95948 | $12 \quad 21$ | 14018 | $16 \quad 231$ | $18 \quad 048$ |  |
| 20754 | 22108 | 0031 | 2244 | 411 | 6 114 | 8131 | 10344 | 12558 | 14414 | $16 \quad 627$ | 18444 |  |
| 201151 | 2214 | 0428 | 2641 | $4 \quad 458$ | 6711 | $8 \quad 528$ | 10741 | 12954 | $14 \quad 811$ | 161024 | $18 \quad 841$ |  |
| 201548 | 22181 | 0824 | 21038 | 4854 | 6118 | 8924 | 101137 | 121351 | 14127 | 161421 | 181237 |  |
| 201944 | 222157 | 01221 | 21434 | 41251 | 615 | 81321 | 101534 | 121747 | 14164 | 161817 | 181634 |  |
| 202341 | 222554 | 01617 | 21831 | 41647 | 6191 | 81717 | 101931 | 122144 | 14200 | 162214 | 182030 |  |
| 202737 | 222950 | 02014 | 22227 | 42044 | 62257 | 82114 | 102327 | 122540 | 142357 | 162610 | 182427 |  |
| 203134 |  | 02411 | 22624 | 42440 | 62654 | 82510 | 102724 | 122937 | 142754 | 1630 | 182824 |  |
| 203530 |  | 028 | 23020 | 42837 | 63050 | 829 | 103120 | 123333 | 143150 | 1634 | 183220 |  |
| 203927 |  | 0324 |  | 43234 |  | 833 | 103517 |  | 143547 |  | 183617 |  |


|  | Feo |  |  |  |  |  | Aug | ept. | Oct |  | Dec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 164013 | 204227 | 223250 | 0353 | 23320 | 43533 | 63350 | 836 | 103816 | 123633 | 143846 | 637 |
| 184410 | 204623 | 223647 | 0390 | 23716 | 43930 | 63746 | 8400 | 104213 | 124030 | 144243 | 164059 |
| 18486 | $20 \leq 020$ | 224043 | 04256 | 24113 | 44326 | 64143 | 84356 | 10469 | 124426 | 144639 | 164456 |
| 1852 5 | 205416 | 224440 | 04653 | 24510 | 44723 | 64540 | 84753 | 10506 | 124823 | 145036 | 164853 |
| 185559 | 205813 | 224836 | - 5049 | 2496 | 45119 | 64936 | 85149 | 10543 | 125219 | 145432 | 165249 |
| 185956 | 2129 | 225233 | 05446 | $253 \quad 2$ | 45516 | 65333 | 85546 | 105759 | 125616 | 145829 | 165646 |
| 19353 | 21.66 | 225629 | 05843 | 25659 | 45912 | 65729 | 85942 | 11156 | 13012 | 15226 | 17042 |
| 19749 | 21102 | 23026 | 1239 | 3056 | 539 | 7126 | 9339 | 11552 | 1349 | 15622 | 17439 |
| 191146 | 211359 | $23+22$ | 1636 | 3452 | $\begin{array}{llll}5 & 7 & 6\end{array}$ | 7522 | 9736 | 11949 | 1388 | 151019 | $17 \quad 835$ |
| 191542 | 211756 | 23819 | 11032 | 3849 | 5112 | 7919 | 91132 | 111345 | 13122 | 151415 | 171232 |
| 191939 | 212152 | 231216 | 11429 | 31245 | 51459 | 71315 | 91529 | 111742 | 139559 | 151812 | 171628 |
| 192335 | 212549 | 231612 | 11825 | 31642 | 51855 | 71712 | 91925 | 112138 | 131955 | 15228 | 172025 |
| 192732 | 212945 | 23209 | 12222 | 32039 | 52252 | 7219 | 92322 | 112535 | 132352 | 15265 | 172422 |
| 193928 | 213342 | 23245 | 12618 | 32435 | 52648 | 7255 | ${ }_{5}^{5} 2718$ | 112932 | 132748 | 15301 | 172818 |
| 193525 | 213738 | 2328 2 | 13015 | 32832 | 53045 | 7292 | 93115 | 113328 | 133145 | 153358 | 173215 |
| 193922 | $21+135$ | 233158 | 13412 | 33228 | 53442 | 73258 | 93512 | 113725 | 133541 | 153755 | 173611 |
| 194318 | 294531 | 233555 | 1388 | 33625 | 53838 | 73655 | 9398 | 114121 | 133938 | 154151 | 17408 |
| 194715 | 214928 | 233951 | 1425 | 34021 | 54235 | 74051 | 9435 | 114518 | 134334 | 154548 | 17444 |
| 195111 | 215325 | 234348 | 1461 | 34418 | 5 ¢ 41 | 74448 | 9471 | 114914 | 134731 | 154944 | 17481 |
| 19558 | 215721 | 234745 | 14958 | 34814 | 55028 | 74844 | 95058 | 115311 | 135128 | 155341 | 175157 |
| 19594 | 22118 | 235141 | 15354 | 35211 | 55424 | 75241 | 55454 | 1157 | 135524 | 155737 | 175554 |
| 2031 | $\begin{array}{ll}22 & 514\end{array}$ | 235538 | 15751 | 3568 | 55821 | 75638 | 95851 | 129 | 135929 | $16 \quad 134$ | 175951 |
| $20 \quad 658$ | $22 \quad 911$ | 235934 | 2147 | 40 | $6 \quad 217$ | 8034 | 10247 | $\begin{array}{llll}12 & 5 & 1\end{array}$ | 14317 | $16 \quad 530$ | $18 \quad 347$ |
| 201054 | 22137 | 0331 | 2544 | 441 | 6614 | 8431 | $10 \quad 644$ | $12 \quad 857$ | 14714 | 16927 | 18744 |
| 201451 | 2217 | 0727 | 2981 | 4757 | 61011 | 8827 | 101040 | 121254 | 141110 | 161324 | 181140 |
| 201847 | 22210 | 01124 | 21337 | 41154 | 614 | E1224 | 101437 | 121650 | 1415 | 161720 | 181537 |
| 202244 | 222457 | 01529 | 21734 | 41550 | 618 | 81620 | 101834 | 122047 | 1419 | 162117 | 181933 |
| 202640 | 222854 | 019 | 22130 | 41947 | 6220 | 82017 | 102230 | 122443 | 14230 | 162513 | 182330 |
| 203037 |  | 02314 | 22527 | 42343 | 62557 | ¢ 2413 | 102627 | 122840 | 142657 | 162990 | 182727 |
| 203433 |  | 02710 | 22923 | 42740 | 62953 | 82810 | 103023 | 123236 | 143053 | 16336 | 183123 |
| 203830 |  | 0397 |  | 43137 |  | 832 | 10342 |  | 1434 |  | 183520 |


| Jan. | Fab. | Mar. | April | May | dune | July | Aus. | Sept. | Oct. | Nov. | Dec |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 183916 | 204129 | 223550 | 0383 | 23619 | 43833 | 63649 | 8393 | 104116 | 123932 | 144146 | 16402 |  |
| 184313 | 204526 | 223946 | 04159 | 24016 | 44229 | 64046 | 84259 | 104512 | 124329 | 144542 | 164359 |  |
| 18479 | 204923 | 224343 | 04556 | 24412 | 44626 | 64442 | 84656 | 10499 | 124726 | 144939 | 164755 |  |
| 18516 | 205319 | 224739 | 04952 | 2489 | 45022 | 64839 | 85052 | 10536 | 125122 | 145335 | 165152 |  |
| 18552 | 205716 | 225136 | 05349 | 2526 | 45419 | 65236 | 85449 | 10572 | 125519 | 145732 | 165549 |  |
| 185859 | 21.112 | 225532 | 05746 | 2562 | 45815 | 65632 | 85845 | 11059 | 125995 | 15128 | 165945 |  |
| 19256 | 2159 | 225929 | 1142 | 25959 | 52212 | 7029 | 9242 | 11455 | 13312 | $15 \quad 525$ | $17 \quad 342$ |  |
| 19652 | $21 \quad 95$ | $23 \quad 325$ | 1539 | 3355 | 566 | $\begin{array}{ll}7 & 425\end{array}$ | 9639 | 11852 | 1378 | 75922 | 17738 |  |
| 191049 | 21132 | 23722 | 1935 | 3752 | 510 | 7822 | 91035 | 111248 | 1311 | 151318 | 171135 |  |
| 191445 | 211658 | 231119 | 11332 | 31148 | 5142 | 71218 | 91432 | 111645 | 1315 | 151715 | 171531 |  |
| 191842 | 212055 | 231515 | 11728 | 31545 | 51758 | 71615 | 91828 | 112041 | 131858 | 152111 | 171928 |  |
| 192238 | 212452 | 231912 | 12125 | 31941 | 52155 | 72012 | 92225 | 112438 | 132255 | 15258 | 172324 |  |
| 192635 | 212848 | 23238 | 12521 | 32338 | 52551 | 7248 | 92621 | 112834 | 132651 | 1529 | 172721 | 13 |
| 193031 | 213245 | 23275 | 12918 | 32735 | 52948 | 7285 | 93018 | 113231 | 133048 | 1533 | 173198 |  |
| 193428 | 213641 | 2331 1 | 13314 | 33131 | 53344 | 7321 | 93414 | 113628 | 133444 | 153657 | 173514 |  |
| 193825 | 214038 | 233458 | 13711 | 33528 | 53741 | 73558 | 93811 | 114023 | 133841 | 154054 | 173911 |  |
| 194221 | 214434 | 233854 | 1418 | 3 3924 | 54138 | 73954 | 9428 | 114421 | 134237 | 154451 | 17437 |  |
| 194618 | 214831 | 234251 | 1454 | 34321 | 54534 | 74351 | 946 | 114817 | 134634 | 154847 | 1747 |  |
| 195014 | 215227 | 234648 | 1491 | 34717 | 54931 | 7 7 | 9501 | 115214 | 135030 | 155244 | 17510 |  |
| 195411 | 215624 | 235044 | 15257 | 3 3 3 5114 | 5 5 5 5 | 75144 75541 | 95357 | 1115610 | 135427 | 155640 | 175457 | 20 |
| 19587 | $22 \quad 021$ | 235441 | 15654 | 35510 359 | 55724 | 75541 | 95754 | 120 | 135824 | $16 \quad 037$ | 175853 |  |
| 2024 | $\begin{array}{llll}22 & 4 & 17\end{array}$ | 235837 | 2 0 50 <br> 2 4  | 3597 | $\begin{array}{llll}6 & 1 & 20 \\ 6 & 5 & 17\end{array}$ | 75937 | 10150 | 124 | 14220 | 16433 | $18 \quad 250$ |  |
| 2060 | $\begin{array}{llll}22 & 814\end{array}$ | 0234 | $\begin{array}{lll}2 & 4 & 47\end{array}$ | 434 | $\begin{array}{llll}6 & 5 & 17 \\ 6 & 9 & 17\end{array}$ | 8 8 333 | 10 | 1280 | 146617 | 16.830 | $18 \quad 647$ |  |
| 20957 | 221210 | 0630 | 2843 | 470 | 6 6 913 | $8 \quad 730$ | $10 \quad 943$ | 121157 | 141013 | 161226 | 181043 | 24 |
| 201354 | 22167 | 01027 | 29240 | 41057 | 61310 | 81127 | 101340 | 121553 | 141410 | 161623 | 181440 | 25 |
| 201750 | 22203 | 01423 | 21637 | 41453 | 6177 | 81523 | 101737 | 121950 | 14186 | 162020 | 181836 | 26 |
| 202147 | 22240 | 01820 | 22033 | 41850 | 6213 | 81920 | 102133 | 122346 | 14223 | 162416 | 182233 | 27 |
| 202543 | 222756 | 02217 | 22430 | 42246 | 6250 | 82316 | 102530 | 122743 | 142559 | 162813 | 182629 | 28 |
| 202940 | 223153 | 02613 | 22826 | 42643 | 62856 |  | 102926 | 123139 | 142956 | 16329 | 183026 |  |
| 203336 |  | 03010 | 23223 | 43040 43436 | 63253 | 8 8 8 8 $\mathbf{3 5} 106$ | 103323 103719 | 123536 | $\begin{aligned} & 143353 \\ & 143749 \end{aligned}$ | 16366 | 183423 | 30 31 |


| Jan. | Feb. | Mar. | April | Mar | June | July | Aug | Sed | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184216 | 204429 | 223452 | 0376 | 23522 | 43735 | 63552 | 8385 | 104019 | 123835 | 144048 | 16395 |
| 184612 | 204825 | 223849 | 0412 | 23919 | 44132 | 63949 | 8422 | 104415 | 124232 | 144445 | $1643 \quad 2$ |
| 18509 | 205222 | 224246 | 04459 | 24315 | 44529 | 64345 | 84559 | 104812 | 124628 | 144842 | 164658 |
| 18545 | 205619 | 224642 | 04855 | 24712 | 44925 | 64742 | 84955 | 10528 | 125025 | 145238 | 165055 |
| 18582 | $21 \quad 015$ | 225039 | 05252 | 2518 | 45322 | 65138 | 85352 | 10565 | 125421 | 145635 | 165451 |
| 19158 | 21412 | 225435 | 05648 | 2555 | 45718 | 65535 | 85748 | 1101 | 125818 | 15031 | 165848 |
| 19555 | 2188 | 225832 | 1045 | 2592 | $5 \begin{array}{llll}5 & 1 & 15\end{array}$ | 65932 | 9145 | 11358 | 13215 | 15428 | $17 \quad 244$ |
| 19952 | 21125 | 23228 | 1441 | 3 3 258 | $5 \quad 511$ | 7 7 7 | 9541 | 11755 | 13611 | $15 \quad 824$ | $17 \quad 641$ |
| 191348 | 21961 | 23625 | 1838 | 3 3 655 | $\begin{array}{llll}5 & 9 & 8\end{array}$ | 7 7 7 1125 | $9 \quad 938$ | 111151 | 13108 | 151221 | 171038 |
| 191745 | 211958 | 231021 | 11235 | 31051 | 5134 | 71121 | 91334 | 111548 | 1314 | 151617 | 171434 |
| 192141 | 212354 | 231418 | 11631 | 31448 | $\begin{array}{llll}517 & 1 \\ 5 & \end{array}$ | 71518 | 91731 | 111944 | 13181 | 152014 | 171831 |
| 192538 | 212751 | 231815 | 12028 | 31844 | 52058 | 71914 | 92128 | 112341 | 132157 | 152411 | 172227 |
| 192934 | $2131-48$ | 232211 | 12424 | 32241 | 52454 | 72311 | 92524 | 112737 | 132554 | 15287 | 172624 |
| 193331 | 213544 | 23268 | 12821 | 32637 | 52851 | 7277 | 92921 | 113134 | 132950 | 15324 | 173020 |
| 193727 | 213941 | 23304 | 13217 | 3 3034 | 53247 | 7314 | 93317 | 113530 | 133347 | 15360 | 173417 |
| 194124 | 214337 | 23341 | 13614 | 33431 | 53644 | 7351 | 93714 | 113927 | 133744 | 153957 | 173813 |
| 194521 | 214734 | 233757 | 14010 | 33827 | 54040 | 73857 | 94110 | 114324 | 134140 | 154353 | 174210 |
| 194917 | 215130 | 234154 | 1447 | 34224 | 54437 | 74254 | 9457 | 114720 | 134537 | 154750 | 17467 |
| 195314 | 215527 | 234550 | 1484 | 34620 | 54834 | 74650 | 9493 | 115117 | 134933 | 155146 | 17503 |
| 195710 | 215923 | 234947 | 1520 | 35017 | 55230 | 75047 | 9530 | 115513 | 135330 | 155543 | 17540 |
| 2017 | $22 \quad 320$ | 235344 | 15557 | 35413 | 55627 | 75443 | 95657 | 115910 | 135726 | 155940 | 175756 |
| 2053 | $22 \quad 717$ | 235740 | 15953 | 35810 | 6023 | 75840 | $10 \quad 053$ | 1236 | 14123 | 16336 | $18 \quad 153$ |
| 2090 | 221113 | 0937 | 2350 | 426 | $6 \quad 420$ | 8236 | $10 \quad 450$ | $12 \quad 73$ | 14519 | 16733 | $18 \quad 549$ |
| 201256 | 221510 | 0533 | 2746 | 463 | 6816 | 8633 | $10 \quad 846$ | 121059 | 14916 | 161129 | $18 \quad 946$ |
| 201653 | 22196 | 0930 | 21143 | 4100 | 61213 | 81030 | 101243 | 121456 | 141313 | 161526 | 181343 |
| 202050 | 2223 3 | 01326 | 21539 | 41356 | 616.9 | 81426 | 101639 | 121853 | 14179 | 161922 | 181739 |
| 202446 | 222659 | 01723 | 21936 | 41753 | 6206 | 81823 | 102036 | 122249 | 14216 | 162319 | 192136 |
| 202843 | 223056 | 02119 | 22333 | 42149 | 6243 | 82219 | 102432 | 122646 | 14252 | 162715 | 182532 |
| 203239 |  | 02516 | 22729 | 42546 | 62759 | 82616 | 102829 | 123042 | 142859 | 163112 | 182929 |
| 203636 |  | 02912 | 23126 | 42942 | 63156 | 83012 | 103226 | 123439 | 143255 | 16359 | 183325 |
| 204032 |  | 0339 |  | 43339 |  | 8349 | 103622 |  | 143652 |  | 183722 |

1918

| Jan. | Feb. | Ma | Apr | May | un | July | Aug. | Sepr. | Ocr | Nov | Dec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184118 | 204332 | 223355 | 0368 | 23425 | 43638 | 63455 | 837 | 103921 | 123738 | 143951 | 1638 |
| 184515 | 204728 | 223752 | 0405 | 23822 | 44035 | 63851 | 841 | 104318 | 124135 | 144348 | 1642 |
| 184912 | 205125 | 224148 | 0441 | 24218 | 44431 | 64248 | 845 | 104714 | 124531 | 144744 | 1646 |
| 18538 | 205521 | 224545 | 04758 | 24615 | 44828 | 64645 | 84858 | 105111 | 124928 | 145141 | 164957 |
| 18575 | 205918 | 224941 | 05155 | 25011 | 45224 | 65041 | 85254 | 10558 | 125324 | 145537 | 165354 |
| 1911 | 21315 | 225338 | 05551 | 2548 | 45621 | 65438 | 85651 | 1059 | 125721 | 145934 | 165751 |
| 19458 | 21711 | 225735 | 05948 | 2584 | 5018 | 65834 | 9048 | 113 | 13117 | 15330 | 17147 |
| 19854 | 21118 | 23131 | 1344 | $\begin{array}{llll}3 & 2 & 1\end{array}$ | S 414 | $7 \quad 239$ | 9444 | 11657 | 13514 | 15727 | $17 \quad 544$ |
| 191251 | 21154 | 23528 | 1741 | 3557 | 5 | 7627 | 9841 | 111054 | $13 \quad 910$ | 151124 | 17940 |
| 1916 4? | 21191 | $23 \quad 924$ | 11137 | $\begin{array}{llll}3 & 9 & 54\end{array}$ | 5127 | 71024 | 91237 | 111450 | 13137 | 151520 | 171337 |
| 192044 | 212257 | 231321 | 11534 | 31351 | 5164 | 71420 | 91634 | 111847 | 1317 | 151917 | 171733 |
| 192441 | 212654 | 231717 | 11930 | 31747 | 5200 | 71817 | 92030 | 112243 | 13210 | 152313 | 172130 |
| 192837 | 213050 | 232114 | 12327 | 32144 | 52357 | 72214 | 92427 | 112640 | 132457 | 152710 | 172526 |
| 193234 | 213447 | 232510 | 12724 | 32540 | 52753 | 72610 | 92823 | 113037 | 132853 | 15316 | 172923 |
| 193630 | 213843 | 23297 | 13120 | 32937 | 53150 | 7307 | 93220 | 113433 | 133250 | 15353 | 173320 |
| 194027 | 214240 | 23334 | 1 3517 | 33333 | 53547 | 7343 | 93617 | 113830 | 133646 | 153859 | 173716 |
| 194423 | 214637 | 23370 | 13913 | 33730 | 53943 | 7380 | 94013 | 114226 | 134043 | 154256 | 174113 |
| 194820 | 215033 | 234057 | 14310 | 34126 | 54340 | 74156 | 94410 | 114623 | 134439 | 154653 | 17459 |
| 195216 | 215430 | 234453 | 1476 | 34523 | 54736 | 74553 | 9486 | 115019 | 134836 | 155049 | 1749 |
| 195613 | 215826 | 234850 | 1513 | 34920 | 55133 | 74950 | 9523 | 115416 | 135232 | 155446 | 17532 |
| 20010 | $22 \quad 223$ | 235246 | 15459 | 35316 | 55529 | 75346 | 95559 | 115812 | 135629 | 155842 | 175659 |
| 2046 | $22 \quad 619$ | 235643 | 15856 | 35713 | 55926 | 75743 | 95956 | 1229 | 14026 | 16239 | $18 \quad 056$ |
| 2088 | 221016 | 0039 | 2253 | 419 | 6322 | 8139 | 10352 | 126 | 14422 | 16635 | 18452 |
| 201159 | 221412 | 0436 | 2649 | 456 | 6719 | $8 \quad 536$ | 10749 | 12102 | $14 \quad 819$ | 161032 | $18 \quad 849$ |
| 201556 | 22189 | 0832 | 21046 | 492 | 61116 | $8 \quad 932$ | 101145 | 121359 | 141215 | 161428 | 181245 |
| 201952 | 22226 | 01229 | 21442 | 41259 | 61512 | 81329 | 101542 | 121755 | 141612 | 161825 | 181642 |
| 202349 | 22262 | 01626 | 21839 | 41655 | 6199 | 81725 | 101939 | 122152 | 14208 | 162222 | 182038 |
| 202745 | 222959 | 02022 | 22235 | 42052 | 6235 | 82122 | 102335 | 122548 | 1425 | 162618 | 182435 |
| 203142 |  | 02419 | 22632 | 42449 | 6272 | 82519 | 102732 | 122945 | 14281 | 163015 | 182831 |
| 203539 |  | 02815 | 23028 | 42845 | 63058 | 82915 | 103128 | 123341 | 143158 | 163411 | 183228 |
| 203935 |  | 03212 |  | 43242 |  | 83312 | 103525 |  | 143555 |  | 183625 |


| Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sepe. | Oct. | Nor. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184021 | 204234 | 223258 | 03511 | 23328 | 43541 | 63358 | 83611 | 103824 | 123641 | 143854 | 163710 |
| 184418 | 204631 | 223654 | 0398 | 23724 | 43937 | 63754 | 8407 | 104221 | 124037 | 144250 | 16417 |
| 184814 | 205027 | 224051 | 0434 | 24121 | 44334 | 64151 | 8444 | 104617 | 124434 | 144647 | 16453 |
| 185211 | 205424 | 224448 | 0471 | 24517 | 44730 | 64547 | 8480 | 105014 | 124830 | 145043 | 16490 |
| 18567 | 205821 | 224844 | 05057 | 24914 | 45127 | 64944 | 85157 | 105410 | 125227 | 145440 | 165257 |
| 1904 | 21217 | 225241 | 05454 | 25310 | 45524 | 65340 | 85554 | 10587 | 125623 | 145836 | 165653 |
| 1945 | $21 \quad 614$ | 225637 | 05850 | 2577 | 45920 | 65737 | 85950 | 1123 | 13020 | 15233 | $17 \quad 50$ |
| 19757 | 211010 | $\begin{array}{lll}23 & 0 & 34\end{array}$ | 1247 | $\begin{array}{llll}3 & 1 & 3\end{array}$ | $\begin{array}{llll}5 & 3 & 17\end{array}$ | 7 7 7 133 | 9347 | 1160 | 13416 | $15 \quad 630$ | 17446 |
| 191154 | 21147 | 23430 | 1643 | $\begin{array}{llll}3 & 5 & 0\end{array}$ | $\begin{array}{llll}5 & 713\end{array}$ | $7 \quad 530$ | 9743 | 11956 | 13813 | 151026 | 17884 |
| 191550 | 21183 | $\begin{array}{llll}23 & 8 & 27\end{array}$ | 11040 | 3857 | 51110 | $7 \quad 927$ | 91140 | 111353 | 131210 | 151423 | 171239 |
| 191947 | 21220 | 231223 | 11437 | 31253 | 5156 | 71323 | 91536 | 111749 | 13166 | 151819 | 171636 |
| 192343 | 212556 | 231620 | 11833 | 31650 | 5193 | 71720 | 91933 | 112146 | 13203 | 152216 | 172032 |
| 192740 | 212953 | 232016 | 12230 | 32046 | 52259 | 72116 | 92329 | 112543 | 132359 | 152612 | 172429 |
| 193136 | 213350 | 232413 | 12626 | 32443 | 52656 | 72513 | 92726 | 112939 | 132756 | 15309 | 172826 |
| 193533 | 213746 | 232810 | 13023 | 32839 | 53053 | 7299 | 93123 | 113336 | 133152 | 15345 | 173222 |
| 193929 | 214143 | 23326 | 13419 | 33236 | S 3449 | 7336 | 93519 | 113732 | 133549 | 15382 | 173619 |
| 194326 | 214539 | 23363 | 13816 | 33632 | 53846 | 7372 | 93916 | 114129 | 133945 | 154159 | 174015 |
| 194723 | 214936 | 233959 | 14212 | 34029 | 54242 | 74059 | 94312 | 114525 | 134342 | 154555 | 174412 |
| 195119 | 215332 | 234356 | 1469 | 34426 | 54639 | 74456 | 9479 | 114922 | 134738 | 154952 | 17488 |
| 195516 | 215729 | 234752 | 1505 | 34822 | 55035 | 74852 | 9515 | 115318 | 135135 | 155348 | 17525 |
| 195912 | $\begin{array}{lll}22 & 1 & 25\end{array}$ | 235149 | 1542 | 35219 | 55432 | 75249 | 9552 | 115715 | 135532 | 155745 | 17561 |
| 2039 | $22 \quad 522$ | 235545 | 15759 | 35615 | 55829 | 75645 | 95858 | 12112 | 135928 | 16 16 | 175958 |
| $\begin{array}{llll}20 & 7 & 5 \\ 20 & 19 & 2\end{array}$ | $\begin{array}{rrrr}22 & 9 & 19 \\ 22 & 1 & 15\end{array}$ | 235942 0 0 | 2 2 2 555 | $\begin{array}{llll}4 & 0 & 12 \\ 4 & 4 & 8\end{array}$ | 6 6 225 | 88042 | 10255 | 12 S 8 | 14325 | $\begin{array}{lll}16 & \text { S } 38\end{array}$ | $18 \quad 355$ |
| $\begin{array}{llll}20 & 19 & 2 \\ 20 & 14 & 58\end{array}$ | $\begin{array}{lllll}22 & 13 & 15 \\ 22 & 17 & 12\end{array}$ | 0 0 0 7395 | 2552 | 448 | 6622 | 88438 | 10652 | 1295 | 14721 | $16 \quad 934$ | $18 \quad 751$ |
| 201855 | 22 1711 <br> 22 21 | 0 0 | $\begin{array}{rrr}2 & 9 & 48 \\ 2 & 13 & 45\end{array}$ | 488 | 61018 | 88835 | 101048 | 1213 \% | 141118 | 161331 | 181148 |
| 202252 | $2225 \quad 5$ | - 011528 | $\begin{array}{llll}2 & 13 & 45 \\ 2 & 17 & 41\end{array}$ | $\begin{array}{llll}4 & 12 & 1 \\ 4 & 15 & 58\end{array}$ | 61415 61811 | 811231 81628 | 101445 101841 | 121658 | 141514 | 161728 | 181544 |
| 202648 | 22291 | 0 1925 | 22138 | 41558 41955 | 618 6 622 6 | 81628 82025 | 101841 102238 | 122054 | 141911 | 162124 | 181941 |
| 203045 |  | 02321 | 22534 | 442351 | 6228 6264 | 82025 82421 | 102238 102634 | 122451 | $\begin{array}{llll}14 & 23 & 7 \\ 14 & 27 & 4\end{array}$ | 162521 | 182337 |
| 203441 |  | 02718 | 22931 | 42748 | 6261 630 |  | 102634 103031 | 122847 | 14274 | 162917 | 182734 |
| 203838 |  | 03114 |  | 43144 | 6301 | $\begin{array}{ll} 82818 \\ 8 & 32 \end{array}$ | 103031 103427 | 123244 | $\begin{array}{llr} 1431 & 1 \\ 1434 & 57 \end{array}$ | 163314 | $\begin{aligned} & 183131 \\ & 183527 \end{aligned}$ |


| lan | Feb. | Mar. | Adrit | May | Junc | Jul | Aug | Sept | Oct | Nov | Des. | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 183924 | 204137 | 223557 | 03810 | 23627 | 43840 | 63657 | 83910 | 104123 | 123940 | 14.4153 | 16409 | 1 |
| 184320 | 204533 | 223953 | 0427 | 24023 | 44236 | 64053 | 8436 | 104520 | 124336 | 144549 | 10446 |  |
| 184717 | 204930 | 224350 | 0463 | 24420 | 44633 | 64450 | 8473 | 104916 | 124733 | 144946 | 16482 | 3 |
| 185113 | 205327 | 224747 | 0500 | 24816 | 45030 | 64846 | 85059 | 105313 | 125129 | $1+53+2$ | 165159 | 4 |
| 185510 | 205723 | 225143 | 05356 | 25213 | 45420 | 65243 | 85456 | 10579 | 125526 | 145739 | 165556 | 3 |
| 18596 | $21: 20$ | 225540 | 05753 | 2569 | 45823 | 65639 | 85853 | 1116 | 125922 | $\begin{array}{ll}15 & 135\end{array}$ | 165952 | e |
| 1933 | 21516 | 225936 | 1149 | 306 | 5219 | 7036 | 9249 | 1152 | $13 \quad 319$ | $15 \quad 532$ | $17 \quad 349$ | 7 |
| 1970 | 21913 | 23333 | 1 546 | 343 | 5616 | 7432 | 9646 | 11859 | 13715 | 15929 | 17745 | 8 |
| 191056 | 21139 | 23729 | 1942 | 3759 | 51012 | 7829 | 91042 | 111256 | 131112 | 151325 | 171142 | 9 |
| 31453 | 21176 | 231126 | 11339 | 31156 | 5149 | 71226 | 91439 | 111652 | 13159 | 151722 | 171538 | 10 |
| 191849 | 21212 | 231522 | 11736 | 31552 | 518 | 71622 | 91835 | 112049 | 13195 | 152118 | 171935 | 18 |
| 192246 | 212459 | 231919 | 12132 | 31949 | 5222 | 72019 | 92232 | 112445 | 13232 | 152515 | 172331 | 12 |
| 192642 | 212856 | 232316 | 12529 | 32345 | 52559 | 72415 | 92628 | 112842 | 132658 | 152911 | 172728 | 13 |
| 193039 | 213252 | 232712 | 12925 | 32742 | 52955 | 72812 | 93025 | 113238 | 133055 | 15338 | 173125 | 14 |
| 193435 | 213649 | 23319 | 13322 | 33138 | 53352 | 7328 | 93422 | 113635 | 133451 | 15374 | 173521 | 15 |
| 193832 | 214045 | 23355 | 13718 | 33515 | 5 $37 \div 8$ | 7365 | 93818 | 114031 | 133848 | 15411 | 173918 | 16 |
| 194229 | 214442 | 23392 | 14115 | 33932 | 54145 | 7401 | 94215 | 114428 | 134244 | 154458 | 174314 | 17 |
| 194625 | 214838 | 234258 | 14511 | 34328 | 54541 | 74358 | 94611 | 114824 | 134641 | $15 ; 854$ | 1747 :1 | 18 |
| 195022 | 215235 | 234655 | 1498 | 34725 | 54938 | 74755 | 9508 | 115221 | 135037 | 155251 | 17517 | 15 |
| 195418 | 215631 | 235051 | 1535 | 35121 | 55334 | 75151 | 9544 | 115617 | 135434 | 155647 | 17554 | 20 |
| 195815 | 22028 | 235448 | 1571 | 35518 | 55731 | 75548 | 9581 | $12 \quad 014$ | 135831 | 16044 | 17590 | 21 |
| 20211 | $22 \quad 425$ | 235845 | 2058 | 35914 | 6128 | 75944 | 10157 | $12 \quad 411$ | 14227 | $16 \quad 4+0$ | 18257 | 22 |
| 2068 | $22 \quad 821$ | 0241 | 2454 | 4311 | $6 \quad 524$ | 8341 | $10 \quad 554$ | $\begin{array}{llll}12 & 8 & 7\end{array}$ | 14.624 | $\begin{array}{ll}16 & \text { a } 37\end{array}$ | 18654 | 23 |
| 20104 | 221218 | 0638 | 2851 | 477 | 6921 | 8737 | 10951 | 12124 | 141020 | 161233 | 181050 | 24 |
| 2014 | 221614 | 01034 | 21247 | 4114 | 61317 | 81134 | 101347 | 12160 | 141417 | 161630 | 181447 | 25 |
| 2017 b8 | 222011 | 01431 | 21644 | 4151 | 61714 | 81530 | 101744 | 121957 | 141813 | 162027 | 181843 | 26 |
| 202154 | 2224 | 01827 | 22040 | 41857 | 62110 | 8 1927 | 102140 | 122353 | 142210 | 162423 | 182240 | 27 |
| 202551 | 2228 | 02224 | 22437 | 42254 | 6257 | 82324 | 102537 | 122750 | 14266 | 162820 | 182636 | 28 |
| 202947 | 22320 | 02620 | 22834 | 42650 | 6293 | 82720 | 102933 | 123146 | 14303 | 163216 | 183033 | 29 |
| 203344 |  | 03017 | 23230 | 43047 | 6330 | 83117 | 103330 | 123543 | 14340 | 163613 | 183430 | 30 |
| 203740 |  | 03414 |  | 43443 |  | 83513 | 103726 |  | 143756 |  | 183826 | 31 |


|  | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Ocr. | Nov. | Dec. | 192 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 184223 | 204436 | 223459 | 03712 | 23529 | 43742 | 63559 | 83812 | 104025 | 123842 | 144055 | 163912 | 1 |
| 2 | 184619 | 204832 | 223856 | 0419 | 23926 | 44139 | 63956 | 8429 | 104422 | 124238 | 144452 | 16438 | 2 |
| 3 | 185016 | 205229 | 224252 | 0456 | 24322 | 44535 | 64352 | 8465 | 104818 | 124635 | 144848 | 16475 | 3 |
| 4 | 185412 | 205626 | 224649 | 0492 | 24719 | 44932 | 64749 | 8502 | 105215 | 125032 | 145245 | 1651 | 4 |
| 5 | 18589 | 21022 | 225046 | 05259 | 25115 | 45329 | 65145 | 85358 | 105612 | 125428 | 145641 | 165458 | 5 |
| 6 | 19625 | 21419 | 225442 | 05655 | 25512 | 45725 | 65542 | 85755 | 1108 | 125825 | 15038 | 165855 | 6 |
| 7 | 1962 | 21815 | 225839 | 1092 | 2598 | 5122 | 65938 | 9152 | 1145 | 13221 | 15434 | $17 \quad 251$ | 7 |
| 8 | $19 \quad 959$ | 211212 | 23235 | 1448 | $3 \begin{array}{lll}3 & 3\end{array}$ | 5 5 18 | $7 \begin{aligned} & 7 \\ & 7\end{aligned}$ | 9548 | 1181 | 13618 | 15831 | 17648 | G |
| 9 | 191355 | 21168 | 23632 | 1845 | $\begin{array}{llll}3 & 7 & 1\end{array}$ | 5 | $7 \quad 731$ | $9 \% 45$ | 111158 | 131014 | 151228 | 171044 | 9 |
| 10 | 191752 | 29205 | 231028 | 11241 | 31058 | 51311 | 71128 | 91341 | 111554 | 131411 | 151624 | 171441 | 10 |
| 11 | 192148 | 21241 | 231425 | 11638 | 31455 | 5178 | 71525 | 91738 | 111951 | 13187 | 152021 | 171837 | 11 |
| 12 | 192545 | 212758 | 231821 | 12035 | 31851 | 5214 | 71921 | 92134 | 112347 | 1322 | 152417 | 172234 | 12 |
| 13 | 192941 | 213155 | 232218 | 12431 | 32248 | 5251 | 72312 | 92531 | 112744 | 13261 | 152814 | 172630 | 13 |
| 14 | 193338 | 213551 | 232615 | 12828 | 32644 | 52858 | 72714 | 92927 | 113141 | 132957 | 153210 | 173027 | 14 |
| 15 | 193734 | 213948 | 233011 | 13224 | 33041 | 53254 | 73111 | 53324 | 113537 | 133354 | 15367 | 173424 | 15 |
| 16 | 194131 | 214344 | 23348 | 13621 | 33437 | 53659 | 7357 | 93721 | 113934 | 133750 | 15403 | 173820 | 16 |
| 17 | 194528 | 214741 | 23384 | 14017 | 3 3834 | 54047 | 739 | 94117 | 114330 | 134147 | 15440 | 174217 | 17 |
| 18 | 194924 | 215137 | 2342 1 | 14414 | 34230 | 54444 | 7430 | 94514 | 114727 | 134543 | 154757 | 174613 | 18 |
| 19 | 195321 | 215534 | 234557 | 14810 | 34627 | 54840 | 74657 | 94910 | 115123 | 134940 | 155153 | 175010 | 19 |
| 20 | 195717 | 215930 | 234954 | 1527 | 35024 | 55237 | 75054 | 9537 | 115520 | 135336 | 155550 | 17546 | 20 |
| 21 | 20114 | $22 \quad 327$ | 235350 | 1564 | 35420 | 55633 | 75450 | 9573 | 115916 | 135733 | 155946 | 1758 | 21 |
| 22 | $20 \quad 510$ | 22724 | 235747 | 200 | 35817 | 6030 | 75847 | 1010 | 12313 | 14130 | 16343 | $18 \quad 159$ | 22 |
| 23 | $20 \quad 97$ | 221120 | 0144 | 2357 | 4213 | 6427 | 8243 | 10456 | 12710 | $14 \quad 526$ | 16739 | 18556 | 23 |
| 24 | 20133 | 221517 | 0540 | 2753 | 4610 | 6823 | 8640 | $10 \quad 853$ | 12116 | $14 \quad 923$ | 161136 | 18953 | 24 |
| 25 | $2017 \quad 0$ | 221913 | 0 0 937 | 21150 | 4106 | 61220 | 81036 | 101250 | 12153 | 141319 | 161532 | 181349 | 25 |
| 26 | 202057 | 222310 | 01333 | 21546 | 4143 | 61616 | 81433 | 101646 | 121859 | 141716 | 161929 | 181746 | 20 |
| 27 | 202453 | 22276 | 01730 | 21943 | 41760 | 62013 | 81829 | 102043 | 122256 | 142112 | 162326 | 182142 | 27 |
| 28 | 202850 | 22313 | 02126 | 22339 | 42156 | 6249 | 82226 | 102439 | 122652 | 14259 | 162722 | 182539 | 28 |
| 29 | 203246 |  | 02523 | 22736 | 42553 | 6286 | 82623 | 102836 | 123049 | 14295 | 163119 | 182935 | 29 |
| 30 | 203643 |  | 02919 | 23133 | 42949 | 6322 | 83019 | 103232 | 123445 | 14332 | 163515 | 183332 | 30 |
| 31 | 204039 |  | 03316 |  | 43346 |  | 83416 | 103629 |  | 143659 |  | 183728 | 31 |


| Jan. | Feb | ar. | April | May | June | July | Aug | ept | Ost. | Nov. | Dé | 19 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184125 | 204338 | 22342 | 03615 | 2 | 43645 | 635 | 83715 | 103928 | 123744 | 143957 | 163814 |  |
| 184522 | 204735 | 223758 | 04011 | 23828 | 44041 | 63858 | 84111 | 104324 | 124141 | 144354 | 164211 |  |
| 184918 | 205131 | 224155 | 0448 | 24225 | 44438 | 64254 | 8458 | 104721 | 124537 | 144759 | 1646 |  |
| 185315 | 205528 | 224551 | 0485 | 24621 | 44834 | 64659 | 8494 | 105117 | 124934 | 145147 | 1650 |  |
| 185711 | 205924 | 224948 | 0521 | 25018 | 45231 | 65048 | 8531 | 105514 | 125330 | 145544 | 1654 | 5 |
| 191 | 21321 | 225345 | 05558 | 25414 | 45627 | 65444 | 85657 | 105910 | 125727 | 145940 | 165757 |  |
| 19 | 21718 | 225741 | 05954 | 25811 | 5024 | 65841 | 054 | 113 |  |  | 171.53 |  |
| 19.91 | 211114 | 23138 | 351 | 327 | 5421 | $\begin{array}{llll}7 & 2 & 37 \\ 7 & 6\end{array}$ | 450 | 117 | 13520 | 15733 | 17550 |  |
| 191257 | 211511 | 23534 | 1747 | $3{ }^{3} 64$ | ${ }_{5} 5117$ | 7634 | 9847 | 1111 |  | 151130 |  | 9 |
| 191654 | 21197 | 23931 | 11144 | 3100 | 51214 | 71030 | 91244 | 111457 | 131313 | 151526 | 171343 | 10 |
| 192051 | 21234 | 231327 | 11540 | 31357 | 51610 | 71427 | 91640 | 111853 | 131710 | 151923 | 171740 | 11 |
| 192447 | 21270 | 231724 | 11937 | 31754 | 520 | 71823 | 92037 | 112250 | 1321 | 152320 | 172136 | 12 |
| 192844 | 213057 | 232120 | 12333 | 32150 | 5243 | 72220 | 92433 | 112646 | 1325 | 152716 | 172533 | 13 |
| 193240 | 213453 | 232517 | 12730 | 32547 | 5280 | 72617 | 92830 | 113043 | 132859 | 153113 | 172929 | 14 |
| 193637 | 213850 | 232913 | 13127 | 32943 | 53156 | 73013 | 93226 | 113439 | 133256 | 1535 | 173326 | 15 |
| 194033 | 214247 | 233310 | 13523 | 33340 | 53553 | 73410 | 93623 | 113836 | 133653 | 1539 | 173722 | 16 |
| 194430 | 214643 | 23377 | 1 13920 | 33736 | 53950 | 7386 | 94019 | 114233 | 134049 | 15432 | 174119 | i7 |
| 194826 | 215040 | 23413 | 14316 | 34133 | 54346 | 7423 | 94416 | 114629 | 134446 | 154659 | 174516 | 18 |
| 195223 | 215436 | 23450 | 14713 | 34529 | 54743 | 74559 | 94813 | 115026 | 134842 | 155055 | 174912 |  |
| 195620 | 215833 | 234856 | 1519 | 34926 | 55139 | 74956 | 952 | 115422 | 135239 | 155452 | 1753 | 20 |
| 20016 | 22.229 | 235253 | 1556 | 35323 | 55536 | 75352 | 9566 | 115819 | 135635 | 155849 | 1757 |  |
| 20413 | 22.626 | 235649 | 1592 | 35719 | 55932 | 75749 | 1002 | 12215 | 14032 | 16245 | 1812 | 22 |
| 208 | 221022 | 0 | $\begin{array}{ll}2 & 259 \\ 2 & 656\end{array}$ | 4116 |  | 88146 | 10359 | 12.612 | 14428 | $16 \quad 642$ | 18458 |  |
| 20126 | 221419 | O 442 | 2 2 2 1058 | ${ }_{4}^{4} 512$ | 6 61125 | $\begin{array}{ll}8 & 542 \\ 8 & 9\end{array}$ | 10755 | 12108 | 14.825 | 161038 | 18855 | 24 |
| 20162 | 221816 | 0 839 |  |  | 61122 61519 |  | 101152 | 12145 | 141222 | 161435 | 181251 |  |
| 201959 | 222212 | 01236 01632 | 21449 21845 | 413 417 4 | 61519 61915 | 81 81735 81732 | 101548 10 10 1945 | 1218 12 12 215 | 141618 142015 | 161831 | 181648 | 26 |
| 20 202752 | 2236 | - 01629 | 21845 22242 | 42058 | 61915 62312 | 81732 <br> 82128 <br> 8 | 101945 102342 | 122158 122555 | 142015 142411 | 162228 162624 | 182045 |  |
| 203149 |  | 02425 | 22638 | 42455 | 6278 | 82525 | 102738 | 122951 | 1428 | 163021 | 182838 | 29 |
| 203545 |  | 02822 | 23035 | 42852 | 631 | 82921 | 103135 | 123348 | 1432 | 163418 | 183234 | 30 |
| 203942 |  | 03218 |  | 48 |  | 83318 | 103531 |  | 1436 |  | 183631 | 31 |


|  |  |  | Mar |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 18 | 20 | 2233 | 03517 | 23 | 4 | 6344 | 83617 | 103830 | 析 | 14390 |  |
| 2 | 184424 | 20 | 2237 | 03912 | 23730 | 43944 | 63810 | 84013 | 104 | 124043 |  |  |
| 3 | 184820 | 205034 | 224057 | 04310 | 24127 |  |  | 84410 | 104623 | 124440 |  |  |
|  | 185217 | 205430 | 224454 | 0477 | 24523 | 44737 | 64553 | 848 | 105020 | 12 4836 | 145049 | 16496 |
| 5 | 1856 | 2058 | 2248 | 0593 |  |  |  |  |  |  |  |  |
|  | 19 | 21223 | 225247 | 0550 | 25317 | 45530 | 65346 | 8560 | 1058 | 13026 | 15239 | $17{ }^{17} 5056$ |
|  | 1947 | 21 |  |  |  |  |  |  | 11 |  |  |  |
|  | 198 | 211016 | 23040 | 53 |  |  | - | 3 | 11. | 13, 819 |  |  |
|  | 1912 | 211413 |  | 650 | $3{ }^{3} 56$ | 5719 |  |  | 1110 | 13819 | 151032 |  |
| 10 | 191556 | 211810 | 23833 | 10 |  |  |  |  |  |  |  |  |
|  | 191953 | 2122 | 231230 | 11443 | 31259 | 51513 | 71329 | 91542 | 111756 | 131612 | 151825 | 171642 |
|  | 19 | 2126 | 16 | 118 | 316 | 519 | 717 |  | 112152 | 1324 |  |  |
| 13 | 192746 | 212959 | 232023 | 12236 | 32052 | 523 | 729 | 9 92336 | 112945 | 1328 | 153015 | 172832 |
|  | 1931 | 2133 | 2324 | 12632 | 32449 |  |  | 93129 | 113342 | 133158 | 153412 |  |
| $\begin{aligned} & 15 \\ & 16 \end{aligned}$ | 193539 | 213752 | 23 2816 | ${ }^{1} 130$ | 32846 3 3 | 53455 | 77312 | 9 9525 | 113738 | 133555 | 15 38 | 173625 |
| 17 | 194332 | 2145 | 23369 | 13822 | 33639 | 53852 | 737 | 93922 | 114135 | 133951 | 1542 | 174021 |
| 18 | 194729 | 214942 | 23405 | 14219 | 34035 | 54248 | 741 | 9 | 194539 |  | 15461 |  |
|  | 195125 | 215339 | 2344 | 14615 | 34432 | 54645 | 745 | 94715 | 114928 | 134745 | 154958 | 174814 |
| 20 | 195522 | 215735 | 234759 | 15012 | 34828 | $550 \div 2$ | 7525 | 95119 | 115325 | 1355 |  |  |
| 21 | 碞 | 22 | 235155 | 1548 | 35225 | 55438 | 75255 | 9558 | 115721 | 135538 | 155751 | 17568 |
| 22 | 20 | 22 | 2355 | 158 | 356 | 5 |  |  |  |  |  |  |
| 23 | 20712 | 22925 | 235948 | $\begin{array}{llll}2 & 2 & 1 \\ 2\end{array}$ | ${ }^{4} 018$ | 6231 | 8048 | 1031 | 12514 | $14 \quad 331$ | 16 | $\begin{array}{llll}18 & 4 & 1 \\ 18 & 7\end{array}$ |
|  | 2011 | 221321 | 0345 | 558 | 4415 | 6628 | $8{ }^{8} 444$ | 10.658 | 12919 | 14.727 | 169 | $18 \quad 757$ |
| 25 | 2015 | 221718 | 0741 | 954 | 4811 | 61024 | 84 | 101054 | 1213 | 141124 | 1613 | 181154 |
|  | 2019 | 222114 | 01138 | 21351 | 4128 | 61421 | 81238 | 1014 | 1217 | 141520 | 1617 | 181550 |
| 27 | 202258 | 222511 | 01534 | 21748 | 416 | 61817 | 81634 | 101847 | 1221 | 141917 | 16213 |  |
| 28 | 202654 | 2229 | 01931 | 22144 | 4201 | 62214 | 82031 | 102244 | 122457 | 142314 | 1625 | 182343 |
| 9 | 203051 |  | 02328 | 22541 | 42357 | 62611 | 82427 | 102640 | 122854 | 142710 | 162923 | 182740 |
| 30 | 203447 |  | 027 | 22937 | 42754 | 6307 | 82824 | 103037 |  | 14317 | 163320 | 183137 |
|  | 203844 |  | 03121 |  | 43150 |  | 83220 | 103434 |  | 14353 |  | 183533 |

1924

|  | 18 | 204143 | 2236 | 03816 | 23633 |  | 637 | 83916 | 104129 | 123946 |  | 164015 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 184326 | 204540 | 22400 | 04213 | 24029 | 44242 | 64059 | 84312 | 104526 | 124342 |  | 164 |
|  | 184723 | 204936 | 224356 | 0469 | 24426 | 44639 | 64456 | 8479 | 104922 | 124739 | 144952 | 1648 |
|  | 185119 | 205333 | 224753 | 0506 | 24822 | 45036 | 648 | 851 | 105319 | 125135 | 145348 | 1652 |
|  | 185516 | 205729 | 225149 | 0542 | 25219 | 45432 | 65249 | 855 | 105715 | 125532 | 145745 | 1656 |
|  | 185912 | 21126 | 225546 | 05759 | 25615 | 45829 | 65645 | 85859 | 11112 | 125928 | 15142 | 1659 |
|  | 193 | 21522 | 225942 | 155 | 3012 | 5225 | 7042 | 9255 | 115 | 13325 | 15538 | 17 |
|  | 197 | 21919 | $23 \quad 339$ | 552 | 34 | 5622 | 7439 | 9652 | 11 | 13721 | 15935 | 17751 |
| 9 | 1911 | 211315 | 23735 |  | 3 8 5 | 51018 | $\begin{array}{llll}7 & 835\end{array}$ | 91048 | 1113 | 131118 | 151331 | 1711 |
| 10 | 191459 | 211712 | 231932 | 11345 | 3122 | 51415 | 71232 | 91445 | 111658 | 131515 | 151728 | 1715 |
| 11 | 191855 | 2121 | 231529 | 11742 | 31558 | 51811 | 71628 | 91841 | 112055 | 131911 | 152124 | 1719 |
| 12 | 192252 | 2125 | 231925 | 12138 | 31955 | 5228 | 72025 | 92238 | 112451 | 13238 | 152521 | 172338 |
|  | 192648 | 21292 | 232322 | 12535 | 32351 | 5265 | 72421 | 92635 | 112848 | 1327 | 152917 | 172734 |
| 14 | 193045 | 213258 | 232718 | 12931 | 32748 | 5301 | 72818 | 93031 | 113244 | 1331 | 153314 | 173131 |
| 15 | 1934 | 213655 | 233115 | 13328 | 33144 | 53358 | 73214 | 93428 | 113641 | 133457 | 153710 | 173527 |
| 16 | 193838 | 214051 | 233511 | 13724 | 33541 | 53754 | 73611 | 93824 | 114037 | 133854 | 1541 | 1739 |
| 17 | 194235 | 214448 | 23398 | 14121 | 33938 | 54151 | 740 | 94221 | 114434 | 134250 | 1545 | 174320 |
| 18 | 194631 | 2148 ; | 23434 | 14518 | 34334 | 54547 | 744 | 94617 | 114830 | 134647 | 1549 | 174717 |
| 19 | 195028 | 215241 | 23479 | 14914 | 34731 3 51 | 54944 | 7481 | 95014 | 115227 | 135044 | 15525 | 175113 |
| 20 | 195424 | 215637 | 235057 | $153: 1$ | 35127 | 55340 | 75157 | 95410 | 115624 | 135440 | 155653 | 175510 |
| 21 | 1958 | 22034 | 235454 | 157 | 35524 | 55737 | 75554 | 958 | 12020 | 135837 | 16050 | 1759 |
|  | 20217 | $22 \quad 431$ | 235851 | 214 | 35920 | 134 | 75950 | 10 | 12417 | 14233 | 164 | 18 |
| 23 | 20.614 | 22827 | O 247 | $\begin{array}{llll}2 & 5 & 0\end{array}$ | 4317 | $6 \quad 530$ | $8 \quad 347$ | 106 | 12813 | 14630 | 16843 | 187 |
| 24 | 201011 | 221224 | 0644 | 2857 | 4 | $6 \quad 927$ | 8743 | $10 \quad 957$ | 121210 | 141026 | 161240 | 181056 |
| 25 | 2014 | 221620 | 01040 | 21253 | 41110 | 61323 | 81140 | 101353 | 12166 | 141423 | 1616 | 1814 |
| 27 | 2018 | 222017 | 01437 01833 | 21650 | 415 4 4 4 | 61720 | 81537 | 1017 | 1220 | 141819 | 162033 | 1818 |
| 27 | 20220 | 222413 | 01833 | 22046 | 4193 | 62116 | 81933 | 102146 | 122359 | 142216 | 162429 | 182246 |
| 29 | 202557 | 222810 | 02230 | 22443 | 4230 | 62513 | 82330 | 102543 | 122756 | 142613 | 1629 | 182642 |
| 32 | 202953 | 22326 | 02626 | 22840 | 42656 | 62910 | 82726 | 102939 | 123152 | 1430 | 163222 | 183039 |
| 30 | 203350 |  | 03023 | 23236 | 43053 | 633 | 83123 | 1033 | 123549 |  |  |  |
|  | 203746 |  | 03420 |  |  |  | 83519 | 103732 |  | 14382 |  | 183832 |

1925

|  | Jan. | Feb. | Mar. | April | May | un | Juty | Aug. | Sepr. | Ocr. | Nov. | Dec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 184229 | 204442 | 2235 | 037 | 23535 | 43748 | 636 | 83818 | 104031 | 123848 | 1441 | 163918 |
| 2 | 184625 | 204838 | 22392 | 04195 | 23932 | 44145 | 6402 | 84215 | 104428 | 124245 | 144458 | 164314 |
| 3 | 185022 | 205235 | 224259 | 04512 | 24328 | 44541 | 64358 | 84619 | 104825 | 124641 | 144854 | 164711 |
|  | 185418 | 205632 | 224655 | 049 | 24725 | 44938 | 64755 | 8508 | 105221 | 125038 | 145259 | 1651 |
| 5 | 185815 | 21028 | 225052 | 0535 | 25122 | 45335 45731 | 65951 | 8545 | 105618 | 125434 | 145647 | 165 |
| 6 | 19211 | 21425 | 225448 | 0571 | 25518 | 45731 | 65548 | 858 | 11014 | 125831 | 15044 | 1659 |
| 8 | $19{ }^{19} 8{ }^{6} 8$ | $\begin{array}{lll}21 & 81 \\ 21 & 1218\end{array}$ | 225845 | 15 <br> 1 <br> 1 <br> 1 <br> 4 <br> 15 | 25914 | $\begin{array}{llll}5 & 1 \\ 5 & 28 \\ 5 & 2\end{array}$ |  | ${ }^{9} 958$ | 11411 | 13227 | 15441 | 17257 |
|  | 1914 | 211614 | 23 <br> 23 <br> 638 | 1 1 1 1 1 1 5154 | $\begin{array}{llll}3 & 3 & 19 \\ 3 & 7 & 8\end{array}$ | $\begin{array}{lll}5 & 5 \\ 5 & 24 \\ 5 & 21\end{array}$ | $\begin{array}{llll}7 & 3 & 41 \\ 7 & 7 & 38\end{array}$ | 9 9 9 9 9 54 51 | 11112 | 13 13 13 1024 1020 | 15 <br> 15 <br> 15 234 | 17654 |
| 10 | 191758 | 212011 | 231034 | 11248 | 311 | 51317 | 71134 | 91347 | 11160 | 131417 | 151234 159630 | 1714 |
| 11 | 192154 | 2124 | 231439 | 11644 | 3151 | 51714 | 71531 | 91744 | 111957 | 131814 | 152027 | 1718 |
| 12 | 192551 | 2128 | 231828 | 1 2041 | 31857 | 52110 | 71927 | 9 2140 | 112354 | 132210 | 152423 | 172240 |
|  | 192947 | $\begin{array}{llll}21 & 32 \\ 21 & 35 & 5\end{array}$ | 232224 | 12437 12834 1 | 32254 | 525 | 72324 | 92537 | 112750 | 1326 | 152820 | 172637 |
| 15 | 193740 | 213954 | 233017 | 13230 | 36650 33047 | 529 | 72720 | 92934 | 113147 | 1330 |  | 33 |
| 16 | 194137 | 214350 | 233414 | 13627 | 33047 33443 | 5330 53657 | 73117 73513 | 93330 93727 | 113543 113940 |  | 153613 | 173430 |
| 17 | 194534 | 214747 | 233810 | 14023 | 33840 | 54053 | 73910 | 94123 | 114336 | 134153 | 15446 | 173826 174223 |
| 15 | 194930 | 215143 | 23427 | 14420 | 34237 | 54450 | 7437 | 94520 | 114733 | 134549 | 15483 | 174619 |
| 19 | 195327 | 215540 | 23453 | 14816 | 34633 | 54846 | 7473 | 94916 | 115129 | 134946 | 155159 | 175016 |
| 20 | 195723 | 215936 | 2350 | 15213 | 35030 | 55243 | 7510 | 95313 | 115526 | 135343 | 155556 | 175412 |
| 21 | 20 20 20 5 5 16 | 22 22 22 7 | 235356 | 15610 | 35426 | 55640 | 75456 | 957 | 195923 | 135739 | 155952 | 17589 |
| $\frac{22}{23}$ |  | 229190 | 235753 | 20 | 35823 | ${ }^{6} 036$ | 75853 | 1016 | 12 - 19 | 14136 | 16349 | 18 |
|  | 20139 | 229523 | O 150 | 2 4 <br> 2  <br> 2 7 | 4 4 4 4 | 6 6 433 | $\begin{array}{lll}8 & 249 \\ 8 & 646\end{array}$ | $\begin{array}{llll}10 & 5 & 3 \\ 10 & 8 & 59\end{array}$ | 12716 | 14 14 14 | 16745 | 1862 |
| 25 | 20176 | 221019 | - 943 | 21156 | 41012 | ${ }_{6} 61226$ | 810 <br> 8 <br> 8 <br> 12 | 101256 | 129112 | $\begin{array}{ll}14 & 9 \\ 1413 & 29\end{array}$ | 161142 161539 | $\begin{array}{llrl}18 & 9 & 59 \\ 18 & 13 & 55\end{array}$ |
| 25 | 2021 | 222316 | 01339 | 21552 | 4149 | 61622 | 81439 | 101652 | 1219 | 141722 | 161935 | 181752 |
| 17 | 202459 | 223712 | 01736 | 21949 | ${ }^{41186}$ | 62019 | 81836 | 102049 | 12232 | 142118 | 162332 | 182148 |
| 28 | 202856 | 2231 | 02132 | 22345 | 4222 | 62415 | 82232 | 102445 | 122658 | 1425 15 | 162728 | 18182545 |
| 319 | 203252 20 26 |  | 02229 02925 | 22742 23139 | 42559 4295 | 62812 | 82629 | 102842 | 123055 | 142912 | 163125 | 182942 |
|  | 204045 |  | - 02325 | 23139 | $\begin{aligned} & 42955 \\ & 43352 \end{aligned}$ | 632 | $\begin{aligned} & 83025 \\ & 83422 \end{aligned}$ | $103238$ | 123452 | $14338$ | 163521 | 183338 |


| Jan. | Feb. | Mar. | April | May | June | July | Aus. | Sept. | Ocz. | Nev. | Dec. | 1926 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184131 | 204344 | 22348 | 03621 | 23438 | 43651 | 6358 | 83721 | 103934 | 123751 | 1440 4 | 163820 | 1 |
| 184528 | 204741 | 2238 | 04018 | 23834 | 44047 | 6394 | 84117 | 104339 | 124147 | 14440 | 164217 | 2 |
| 184924 | 205138 | $2242 \quad 1$ | 04414 | 24231 | 44444 | 6431 | 84514 | 104727 | 124544 | 144757 | 164614 | 3 |
| 185321 | 305534 | 22.4558 | 04811 | 24627 | 44841 | 64657 | 84911 | 105124 | 124940 | 145153 | 165010 | 4 |
| 185717 | 205931 | 224954 | 0527 | 25024 | 45237 | 65054 | 8537 | 105520 | 125337 | 145550 | 16547 | 5 |
| 19114 | $21 \begin{array}{ll}21 & 3 \\ 21\end{array}$ | 225351 | 0564 | 25420 | 45634 | 65450 | 8574 | 105917 | 125733 | 145947 | 16583 | 6 |
| 19511 | 21724 | 225747 | 100 | 25817 | $\begin{array}{llll}5 & 0 & 30\end{array}$ | -5847 | 910 | 11313 | 13130 | $15 \quad 343$ | 1720 | 7 |
| 1987 | 211120 | 23144 | 1357 | 3214 | $\begin{array}{lll}5 & 4 & 27\end{array}$ | 7244 | 9457 | 11710 | 13527 | 15740 | 17556 | 8 |
| 19134 | 211517 | $23 \quad 540$ | 1753 | 3 l 610 | $\begin{array}{lll}5 & 8 & 23\end{array}$ | $7 \quad 640$ | 9853 | 11116 | 13923 | 151930 | 17953 | 9 |
| 19170 | 211913 | 2397 | 11150 | 3107 | 51220 | 71037 | 91250 | 11153 | 131320 | 151533. | 171350 | 10 |
| 192057 | 212310 | 231333 | 11547 | 3143 | 51616 | 71433 | 91646 | 11190 | 131716 | 151929 | 171746 | if |
| 192453 | $2127 \quad 7$ | 231730 | 11943 | $\begin{array}{llll}3 & 18 & 0\end{array}$ | 52013 | 71830 | 92043 | 112256 | 132113 | 152326 | 172143 | 12 |
| 192850 | 21313 | 232177 | 12340 | $\begin{array}{llll}3 & 21 & 56\end{array}$ | 52410 | 72226 | 92440 | 112653 | 13259 | 152722 | 172539 | 13 |
| 193246 | 21350 | 232523 | 12736 | 32553 | 5286 | 72623 | 92836 | 113049 | 13296 | 153119 | 172936 | 14 |
| 193643 | 213856 | 232920 | 13133 | 32949 | $5 \begin{array}{llll}5 & 32 & 3\end{array}$ | 73019 | 93233 | 113446 | 13332 | 153516 | 173332 | 15 |
| 194040 | 214253 | 233316 | 13529 | 33346 | 553559 | 73416 | 93629 | 113842 | 133659 | 153912 | 173729 | 16 |
| 194436 | 214649 | 233713 | 13926 | 33743 | 53956 | 73813 | 94026 | 114239 | 134056 | 15439 | 174125 | 17 |
| 194833 | 215046 | 23419 | 14322 | 34139 | 54352 | 7429 | 94422 | 114635 | 134452 | 15475 | 174522 | 18 |
| 195229 | 215442 | 23456 | 14719 | 34536 | 54749 | 7466 | 94819 | 115032 | 134849 | 15512 | 174919 | 19 |
| 195626 | 215839 | 23492 | 15116 | 34932 | 55146 | 7502 | 95215 | 115429 | 135245 | 155458 | 175315 | 20 |
| 20022 | $22 \quad 236$ | 235259 | 15512 | 3 <br> 53 | 55542 | 75359 | 95512 | 115825 | 135642 | 155855 | 175712 | 21 |
| 20419 | 22 22 632 | 235656 | 1599 | 35725 | 55939 | 75755 | 1009 | 12222 | 14038 | 16251 | $\begin{array}{llll}18 & 1 & 8\end{array}$ | 22 |
| 208815 | 221029 | 0052 | $\begin{array}{llll}2 & 3 & 5\end{array}$ | 4122 | 6 6 335 | 8 l | 1045 | 12698 | 14435 | $\begin{array}{lll}16 & 648\end{array}$ | 1855 | 23 |
| 201212 | 221425 | 0449 | 278 | 4518 | $6 \quad 732$ | 8548 | 4088 | 121015 | 148831 | 161045 | $18 \quad 9 \quad 1$ | 24 |
| 20169 | 221822 | 0845 | 21058 | 4915 | 61128 | 8945 | 101158 | 121411 | 141228 | 161441 | 181258 | 25 |
| $2020 \quad 5$ | 222218 | 01242 | 21455 | 41312 | 61525 | 81342 | 101555 | 12188 | 141624 | 161838 | 181654 | 26 |
| 20242 | 222615 | 01638 | 21851 | 4178 | 61921 | 81738 | $101 \% 51$ | 12224 | 142021 | 162234 | 182051 | 27 |
| 202758 | 223011 | 02035 | 22248 | 4215 | 62318 | 82135 | 102348 | 12261 | 142418 | 162631 | 182448 | 28 |
| 203155 |  | 02431 | 22645 | 4251 | 62715 | 82531 | 102744 | 122958 | 142814 | 163027 | 182844 | 29 |
| 203551 |  | 02828 | 23041 | 42858 | 63111 | 82928 | 103141 | 123354 | 143211 | 163424 | 183241 | 30 |
| 203948 |  | 03225 |  | 43254 |  | 83324 | 103538 |  | 14367 |  | 183637 | 31 |


| Jan. | Feb. | Mar. | April | May | June | duly | Aug. | Sepr. | Oct. | Nov. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184034 | 204247 | 223311 | 03524 | 23340 | 43554 | 63410 | 83624 | 103837 | 123653 | 14397 | 163723 |
| 184430 | 204644 | 22377 | 03920 | 23737 | 43950 | 6387 | 84020 | 104233 | 124050 | 14433 | 164120 |
| 184827 | 205040 | 22414 | 04317 | 24133 | 44347 | 6423 | 84417 | 104630 | 124446 | 14470 | 164516 |
| 185223 | 205437 | 22450 | 04713 | 24530 | 44743 | 6460 | 84813 | 105026 | 124843 | 145056 | 164913 |
| 185620 | 205833 | 224857 | 05110 | 24927 | 45140 | 64957 | 85210 | 105423 | 125240 | 145453 | 16539 |
| 19017 | 21230 | 225253 | 0556 | 25323 | 45536 | 65353 | 8566 | 105820 | 125636 | 145849 | 16576 |
| 19413 | 21626 | 225650 | 0593 | 25720 | 45933 | 65750 | 903 | 11216 | 13033 | 15246 | 17113 |
| 19810 | 211023 | 23046 | 130 | $\begin{array}{llll}3 & 1 & 16\end{array}$ | 5329 | $\begin{array}{lll}7 & 1 & 46\end{array}$ | 9359 | 11613 | 13429 | 15642 | 17459 |
| 19126 | 211420 | 23443 | 1656 | $\begin{array}{llll}3 & 5 & 13\end{array}$ | $\begin{array}{llll}5 & 726\end{array}$ | $\begin{array}{llll}7 & 5 & 43\end{array}$ | 9756 | 11109 | 13826 | 151039 | 17885 |
| 19163 | 211816 | 23880 | 11053 | 3 3 99 | 51123 | 7 7 939 | 91153 | 11146 | 131222 | 151436 | 171252 |
| 191959 | 212213 | 231236 | 11449 | 3136 | 51519 | 71336 | 91549 | 11182 | 131619 | 151832 | 171649 |
| 192356 | 21269 | 231633 | 11846 | 3172 | 51916 | 71732 | 91946 | 112159 | 132015 | 152229 | 172045 |
| 192752 | 21306 | 232029 | 12242 | 32059 | 52312 | 72129 | 92342 | 112555 | 132412 | 152625 | 172442 |
| 193149 | 21342 | 232426 | 12639 | 32456 | 5279 | 72526 | 92739 | 112952 | 13289 | 153022 | 172838 |
| 193546 | 213759 | 232822 | 13035 | 32852 | $\begin{array}{llll}5 & 31 & 5\end{array}$ | 72922 | 93135 | 113349 | 13325 | 153418 | 173235 |
| 193942 | 214155 | 233219 | 13432 | 33249 | $\begin{array}{llll}5 & 35 & 2\end{array}$ | 73319 | 93532 | 113745 | 13362 | 153815 | 173632 |
| 194339 | 214552 | 233615 | 13829 | 33645 | 53858 | 73715 | 93928 | 114142 | 133958 | 154211 | 174028 |
| 194735 | 214948 | 234012 | 14225 | 34042 | 54255 | 74112 | 94325 | 114538 | 134355 | 15468 | 174425 |
| 195132 | 215345 | 23449 | 14622 | 34438 | 54652 | $\begin{array}{lll}7 & 45 & 8\end{array}$ | 94722 | 114935 | 134751 | 15505 | 174821 |
| 195528 | 215742 | 2348 | 15018 | 34835 | 55048 | 7495 | 95118 | 115331 | 135948 | 15541 | 175218 |
| 195925 | $\begin{array}{llll}22 & 1 & 38\end{array}$ | 23522 | 15415 | 35231 | 55445 | $7 \begin{array}{lll}7 & 53 & 1\end{array}$ | 95515 | 115728 | 135544 | 155758 | 175614 |
| $20 \quad 321$ | 22 | 235558 | 15811 | 35628 | 55841 | 75658 | 95911 | 12124 | 135941 | 16154 | 18011 |
| 20718 | $22 \quad 931$ | 235955 | $2 \quad 2 \quad 8$ | 4025 | 6238 | 8055 | $10 \begin{array}{lll}10 & 3 & 8\end{array}$ | 12521 | 14338 | $16 \quad 551$ | 184 |
| 201115 | 221328 | 0351 | $2{ }_{2} 6$ | 4421 | $6 \quad 634$ | 88459 | 1074 | 12917 | 14734 | $16 \quad 947$ | $\begin{array}{lll}18 & 8 & 4\end{array}$ |
| 201511 | 221724 | 0748 | 2101 | 4818 | 61031 | $8 \quad 848$ | 1011 | 121314 | 141131 | 161344 | 18121 |
| 20198 | 222921 | 01144 | 21358 | 41214 | 61428 | 81244 | 101457 | 121711 | 141527 | 161740 | 181557 |
| 20234 | 222517 | 01541 | 21754 | 41611 | 61824 | 81641 | 101854 | 12217 | 141924 | 162137 | 181954 |
| 20271 | 222914 | 01938 | 22151 | 4207 | 62221 | 82037 | 102251 | 12254 | 142320 | 162534 | 182350 |
| 203057 |  | 02334 | 22547 | 4244 | 62617 | 82434 | 102647 | 12290 | 142717 | 162930 | 182747 |
| 203454 |  | 02731 | 22944 | 4280 | 63014 | 82830 | 103044 | 123257 | 143113 | 163327 | 183143 |
| 203851 |  | 03127 |  | 43157 |  | 83227 | 103440 |  | 143510 |  | 183540 |


| Jan. | Feb. | Mar. | April | May | June | July | Aug, | Sept. | Oct. | Now. | Dec. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 183937 | 204150 | 223610 | 03823 | 23640 | 43853 | 63710 | 83923 | 104136 | 123953 | 14426 | 164023 |
| 184333 | 204546 | 22406 | 04220 | 24036 | 44249 | 6416 | 84319 | 104533 | 124349 | 14462 | 164419 |
| 184730 | 204943 | 22443 | 04616 | 24433 | 44646 | 6453 | 84716 | 104929 | 124746 | 144959 | 164816 |
| 185126 | 205339 | 22480 | 05013 | 24829 | 45043 | 64859 | 85113 | 105326 | 125142 | 145356 | 165212 |
| 185523 | 205736 | 225156 | 0549 | 252.26 | 45439 | 65256 | 8559 | 105722 | 125539 | 145752 | 16569 |
| 185919 | 21133 | 225553 | 0586 | 25622 | 45836 | 65652 | 8596 | 11119 | 125935 | 15149 | 1705 |
| 19316 | 21529 | 225949 | 122 | 3019 | $\begin{array}{ll}5 & 232\end{array}$ | $7 \quad 049$ | 932 | 11515 | 13332 | 15545 | 1742 |
| 19712 | 21926 | $23 \quad 346$ | 1559 | 3416 | $\begin{array}{lll}5 & 6 & 29\end{array}$ | 7446 | 9659 | 11912 | 13729 | 15942 | 17759 |
| 19119 | 211322 | $23 \quad 742$ | 1955 | $\begin{array}{llll}3 & 8 & 12\end{array}$ | 51025 | $\begin{array}{lll}7 & 8 & 42\end{array}$ | 91055 | 11139 | 131125 | 151338 | 171155 |
| 19156 | 211719 | 231139 | 11352 | 3129 | 51422 | 71239 | 91452 | 11175 | 131522 | 151735 | 171552 |
| 19192 | 212115 | 231535 | 11749 | 3165 | 51818 | 71635 | 91848 | 11212 | 131918 | 152131 | 171948 |
| 192259 | 212512 | 231932 | 12945 | 3202 | 52215 | 72032 | 92245 | 112458 | 132315 | 152528 | 172345 |
| 192655 | 21298 | 232329 | 12542 | 32358 | $\begin{array}{lllll}5 & 26 & 12 \\ 5 & 30\end{array}$ | 72428 | 92642 | 112855 | 132711 | 152925 | 172741 |
| 193052 | 21335 | 232725 | 12938 | 32755 | 5308 | 72825 | 93038 | 113251 | 13318 | 153321 | 173138 |
| 193448 | 21372 | 233122 | 13335 | 33159 | 5345 | 73221 | 93435 | 113648 | 13354 | 153718 | 173534 |
| 193845 | 214058 | 233518 | 13731 | 33548 | 5 l | 73618 | 93831 | 114044 | 13391 | 154914 | 173931 |
| 194241 | 214455 | 233915 | 14128 | 33945 | $\begin{array}{llll}5 & 41 & 58 \\ 5 & 45 & 5\end{array}$ | 74015 | 94228 | 114441 | 134258 | 154511 | 174328 |
| 194638 | 214851 | 234311 | 14524 | 34341 | 54554 | 74411 | 94624 | 114838 | 134654 | 15497 | 174724 |
| 195035 | 215248 | 23478 | 14921 | 34738 | 54951 | $\begin{array}{llll}7 & 48 & 8\end{array}$ | 95021 | 115234 | 135051 | 15534 | 175121 |
| 195431 | 215644 | 23514 | 15318 | 35134 | 55348 | 7524 | 95417 | 115631 | 135447 | 15570 | 175517 |
| 195828 | 22041 | 23551 | 15714 | 35531 | 55744 | 7561 | 95814 | 12027 | 135844 | 16057 | 175914 |
| $20 \quad 224$ | 22437 | 235858 | 2111 | 35927 | $\begin{array}{llll}6 & 1 & 41\end{array}$ | 75957 | 10211 | 12424 | 14240 | 16454 | 18310 |
| $20 \quad 621$ | 22834 | 0254 | $\begin{array}{llll}2 & 5 & 7\end{array}$ | 4324 | $\begin{array}{llll}6 & 5 & 37\end{array}$ | $\begin{array}{llll}8 & 3 & 54\end{array}$ | 1067 | 12820 | 14637 | 16850 | 1877 |
| 201017 | 221231 | 0651 | $\begin{array}{llll}2 & 9 & 4\end{array}$ | 4720 | $\begin{array}{lll}6 & 9 & 34\end{array}$ | 8750 | 10104 | 121217 | 141033 | 161247 | 18113 |
| 201414 | 221627 | 01047 | 2130 | 41117 | 611330 6 1727 | 8 1147 | 10140 | 121613 | 141430 | 161643 | 18150 |
| 201810 | 222024 | 01444 | 21557 | 41514 | 61727 | 81544 | 101757 | 122010 | 141827 | 162040 | 181857 |
| 20227 | 222420 | 01840 | 22053 | 41910 | 62123 | 81940 | 102153 | 12247 | 142223 | 162436 | 182253 |
| 20264 | 222817 | 02237 | 22450 | 4237 | 62520 | 82337 | 102550 | 1228 | 142620 | 162833 | 182650 |
| 2030 | 223213 | 02633 | 22847 | 4273 | 62917 | 8 8 8 8 373 | 102946 | 12320 | 143016 | 163229 | 183046 |
| 203357 |  | 03030 | 23243 | 4310 | 63313 | 8 8 8 135 | 103343 | 123556 | 143413 | 163626 | 183443 |
| 203753 |  | 03426 |  | 43456 |  | 83526 | 103740 |  | 14389 |  | 183839 |


| 1929 | 餭． | Feb | Pis． | April | May | Junce | $151 \%$ | Aug． | Sedt． | Or． | Nor． | Dec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 184235 | 20 4＊ 49 | 2235 ¢ 3 | 03726 | 23541 | 43756 | 63613 | 83826 | $10+37$ | 123856 | 14419 | 163526 |
|  | 184612 | 204846 | $22 \leq 99$ | $0+122$ | 23935 | 44152 | 6409 | 84222 | 104436 | 12.425 | $14 \leq 5$ | 164322 |
|  | i8 5029 | 70 5242 | 22436 | － 4519 | 24336 | 44549 | 6446 | 2 4619 | 104832 | 12 46 | 14492 | 16 47：9 |
|  | 1 5 54 26 | 24 5639 | 22472 | 05916 | 24732 | $449 \pm 5$ | 6482 | \％50¢5 | 105229 | 125045 | 145259 | 165115 |
| ： | 19582 | 21035 | 225159 | $05 \% 12$ | － 5129 | 45342 | 65159 | 85412 | 105 | 125442 | 1－5655 | 1655：2 |
|  | 19 Z 19 | 21432 | 225456 | 0579 | $\div 5525$ | ＋5739 | E 5555 | 8589 | 11022 | 125838 | 15052 | 1659 E |
|  | 1586 | 21829 | 225852 | 1 ： 5 | $25 \% 22$ | 5 ： 35 | E 5952 | 92 | $11 \div 18$ | 13235 | 15448 | 1735 |
| 5 | 11012 | 211225 | 23249 | 152 | 3318 | 5532 | $73 \% 8$ | 962 | 1i 8 is | $13 \pm 32$ | i5 E45 | $17 \quad 7 \quad 1$ |
|  | 1989 | 211622 | $23 \leq 45$ | 1858 | 3715 | 5928 | 7745 | 9.958 | 119111 | 131028 | 1512 4： | 171058 |
| 10 | 1918 | 212018 | 231042 | 11255 | 31112 | 51325 | 71142 | ¢ 1355 | 11168 | 131425 | 151638 | 171755 |
| 1 | $192 \overline{2} 2$ | 21245 | 231430 | 1te5 | 3 35 E | 51721 | 71538 | 91759 | 11205 | 131821 | 152034 | 1718 51 |
| 12 | 192558 | 212811 | 231835 | 12048 | 3195 | 52918 | 71935 | 92148 | \＄1 241 | 132218 | 152434 | 172248 |
| 13 | 197555 | 21326 | $23323 i$ | 12445 | 313 | 52511 | 72331 | 92544 | 112758 | 13269 | 152828 | 172644 |
| 11 | 193351 | 21364 | 237628 | 12841 | 32058 | 52919 | 72728 | 92941 | 113154 | 133011 | 153224 | 173041 |
| 15 | 193748 | 3140 ： | 27 3024 | 13238 | 33054 | 5338 | 73124 | 93338 | 113551 | 1334 \％ | 153629 | 173437 |
| 16 | 404144 | 214358 | 233421 | 13634 | 33451 | 5374 | 735 -3017 | $\bigcirc$ | 113947 | 13 38 | $15 \pm 17$ | 173834 |
| 17 | 194541 | 214754 | 233818 | 14031 | 33847 | 541 | $735: 7$ | 9413 | 11434 | 1342 | 154414 | 174230 |
| 19 | 194237 | I1 5151 | 234214 | 14427 | 34244 | 54457 | 74314 | 54527 | ：1 4 4740 | $13<557$ | 154810 | 174627 |
| 10 | 195334 | 215377 | $23-611$ | 148 24 | 34641 | 54854 | 74711 | 54924 | 115137 | 134954 | 15527 | 175024 |
| 20 | 195731 | 215944 | $7350]$ | 1 5220 | 35037 | 55250 | 751 755 | 95120 | 115536 | 135350 | 1556 | 175420 |
| 21 | $20 \quad 127$ | $22 \quad 340$ | 2554 | 15617 | 35434 | 5564 | 755 | 957 ； 7 | 115930 | 135747 | 1600 | 175817 |
| 21 | 20524 | 22737 | 23580 | － 014 | 35830 | ¢ $0+4$ | 7550 | 10 1：3 | 12327 | 14143 | 16357 | 18 213 |
| 22 | 20920 | 221133 | 0157 | 2410 | 4227 | 6510 | 825 | 10510 | 12723 | 18540 | 16753 | 18610 |
| 2.4 | 201397 | 321530 | 0553 | $\begin{array}{lll}2 & 8 & 7\end{array}$ | 4623 | 6837 | $8 \quad 653$ | $109 ?$ | 121120 | 14936 | $161: 50$ | 18106 |
| 25 | $2017{ }^{13}$ | 221927 | $0 \quad 950$ | 2123 | 41020 | 台1233 | 81050 | 90133 | 121516 | 141333 | 161546 | 16143 |
| 26 | 202110 | 222323 | 01347 | 2160 | ＊ 1416 | 61630 | E 14．46 | 10170 | 121913 | 141730 | $16: 943$ | 18180 |
| 27 | 2025 살 | 222720 | $0 \cdot 17 \pm 3$ | 29956 | 4818 | 62026 | 81843 | 102056 | 1223 | 142175 | 162339 | 182：56 |
| 7． 8 | 20293 | 213186 | 021.10 | 22353 | 42210 | $\therefore 2123$ | 82240 | 102453 | 1227 | 142523 | 162736 | 182553 |
| \％ | 20330 |  | 02536 | 22749 | 4266 | 62819 | 82036 | 102849 | 12313 | 142919 | 163132 | 182949 |
| 30 | 203656 |  | 02933 | 23846 | $430{ }^{3}$ | 63216 | 83033 | 103246 | 123459 | 143316 | 103529 | 1832 ¢6 |
| 21 | 204053 |  | 03329 |  | － 3359 |  | 93429 | 103642 |  | 144712 |  | 183742 |



1931

| 8 man | Fep | Mar | Abr | M | Junc | ly | A | Sep | Oct． | Now | Der． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184042 | 204255 | 223319 | 03532 | 23348 | 4362 | 63418 | 83632 | 103845 | 12371 | 1439：5 | 163739 |
| $184 \div 38$ | 20＊ 51 | 223715 | 03928 | 23745 | ＋ 3958 | － 3815 | 8 4 考 26 | 10.4277 | 13 \％0 58 | － $4+311$ | 164128 |
| 184835 | 2050 i日 | 224912 | 04325 | 24141 | 4435 | 64211 | 84425 | 104638 | 124455 | 14478 | 164524 |
| 18539 | 205445 | 22458 | 04721 | $2 \div 538$ | 44751 | E4E8 | 84821 | 105034 | $12<851$ | 1451 a | $46 \times 924$ |
| \％ 5620 | 205 | 22495 | $05 \% 18$ | 24954 | 431 ¢18 | 6504 | E5218 | 1054 | 125.58 | 14551 | 16 5318 |
| 19.02 .4 | 29238 | 22531 | 05514 | 25331 | 455 ＋4 | $65+1$ | 8569 | 105828 | 125644 | 145657 | it 5714 |
| 19421 | 21.835 | 235650 | 05011 | 25725 | $459+1$ | 65758 | 9017 | 11224 | 13041 | $15 \quad 254$ | $17 \quad 111$ |
| 19 E 18 | 211031 | 23054 | ： 37 | 3 124 | 5337 | $\begin{array}{llll}7 & 1 & 5\end{array}$ | $9+7$ | 11 － 21 | $13 \sim 35$ | 15650 | 175 |
| 171214 | 211427 | 23 a 51 | 171 | 5 5 21 | $\begin{array}{lllll}5 & 7 & 3\end{array}$ | 7551 | ¢ 8 ¢ | $11: 017$ | 13 234 | 1510 वर | 179 |
| 191611 | 211824 | $\begin{array}{llll}23 & 8 & 47\end{array}$ | 111 1 | $\begin{array}{llll}3 & 9 & 17\end{array}$ | 51131 | 7 7－47 | $\bigcirc 121$ | 111414 | 131230 | 159444 | 1713 |
| 19207 | 212220 | 231244 | 11457 | 31314 | 51527 | 7134 | 91557 | 111810 | ；3 is 27 | 15 18 40 | 171657 |
| 19244 | 212817 | 231640 | 11854 | 31790 | 51924 | 71740 | 91554 | 11227 | 132024 | 152237 | 972053 |
| 1928 | 213014 | $23 \geq 037$ | 12250 | 3217 | 52320 | 72137 | －2350 | 1126 | 132420 | 152633 | $172 \div 50$ |
| 193157 | 213480 | 23.2434 | 32547 | 3253 | 52717 | 72594 | 9274 | 11300 | 112817 | 15 3030 | ：7 2847 |
| 193553 | 21387 | 232830 | 1 3043 | 3250 | 53193 | 72930 | $931 * 3$ | 11355 | 13 运13 | 153438 | 173247 |
| 193950 | 21423 | 233227 | － 3440 | $33 \div 57$ | 53510 | 73327 | 935 to | 11 17 53 | 13 zé 10 | 15382 | $173 \leq 40$ |
| 194347 | 2140 | 233623 | 13630 | 33653 | 5396 | 73723 | 93937 | 114150 | $13 \div 06$ | 15 1210 | $i 74036$ |
| 194743 | 217956 | 234020 | ＋ 4233 | 34050 | 5433 | 74120 | 9433 | 114546 | 13.44 | 154616 | 174533 |
| 995140 | 215353 | $23+46$ | ＋ 4630 | 34.4 | 5478 | 74518 | $\bigcirc 4730$ | 114943 | $13+175$ | 155013 | 174820 |
| 195536 | 2157 | 23 21.3 | 15020 | 34843 | 玉50 56 | 74913 | 95126 | 115339 | 135156 | 15549 | 175226 |
| 14 20 | $\begin{array}{llll}22 & 1 & 46 \\ 22 & 5 & 43\end{array}$ | 23 52910 | 15423 15819 | 23739 | 55453 | 7539 | 9553 | 115736 | 13555 | 15 的 6 | 175622 |
| 20 <br> 10 <br> 0 <br> 7 | $\begin{array}{lll}22 & 543 \\ 22 & 39\end{array}$ | 23 <br> 064 <br> 0 <br> 0 | 15815 <br> 2 <br> 15 | 35636 4 4 | 55848 | 7375 | ¢59：9 | 12.32 | 135945 | $16 \quad 20$ | 18019 |
| 201122 | 241336 | 0359 | \％${ }^{2} \times 12$ | － 4 | － 6 | 8 <br> 8 <br> 8 | 10 316 | 17 <br> 17 <br> 17 |  |  | $\begin{array}{ll}18 & 46 \\ 18 & 16\end{array}$ |
| 201519 | 221732 | 0755 |  | ＋E26 | －1039 | 88 | 10119 |  | $\begin{array}{ll}14 & 7 \\ 14 \\ 14 & 19 \\ 19\end{array}$ | 16 9 <br> 16  <br> 16 3 | 18.12 |
| 201016 | 22.218 | 01153 | 2145 | $+1227$ | － $11+36$ | ¢ 1252 | 10 15 | 121719 | 14 <br> 14 <br> 14 <br> 14 <br> 14 | $\begin{array}{lllll}15 & 13 & 52 \\ 16 & 17 & 49\end{array}$ | $\begin{aligned} & 1612 \\ & 18 \text { te } \end{aligned}$ |
| 202312 | 273525 | 0 O 15.45 | 289 | 41619 | $\div 1832$ | ह1649 | 10192 | 122115 | 14153 | 182145 | $\begin{aligned} & 1810 \\ & 1620 \end{aligned}$ |
| 40.79 | 22292 | 01045 | 22150 | 42095 | － 2270 | 02045 | $10 \pm 59$ | 122512 | 14.2328 | $162542$ | $182359$ |
| $20315$ |  | 0254 | $-25$ | 42412 | $\bigcirc 26.5$ | 62442 | 10 2es5 | 12598 | 14 2725 | 162938 | 162755 |
| $\begin{aligned} & 2035 \\ & 20 \\ & 20 \end{aligned}$ |  | 02739 | 2245 | +26 E | 03022 | 8 2838 | 103052 | 12335 | i＋ 3124 | 163j 35 | ： 0 年 5 |
| 20 竘 2 E |  | 03135 |  | 432 |  | 83235 | 103.148 |  | 143518 |  | 183548 |


| 14ti． | Fets． | Mar． | April | May | lunte | July | Aus． | ¢02\％ | Oct | Nior | Dee． | 1932 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1839 ${ }^{\text {d }}$ | 20.115 | 333618 | 0383 | 23848 | 4 39 | 4 3718 | 83931 | 104144 | 12101 | 484214 | 4 | 1 |
| 1893 | 2045 | $22+3015$ | 042相 | 23044 | 4.4258 | 4117 | 84528 | 104541 | 124358 | 14 40：1 |  | \％ |
| 1847 fl | 20495 | 224111 | 0 妘 24 | 244 ＋1 | 44354 | 44511 | 84724 | 104938 | 124754 | 1430 ？ | 164824 | I |
| 183514 | 205314 | 22488 | 05021 | 24837 | 45051 | b 49 E | 85121 | 405334 | 12 $31 \leq 1$ | is 54 | 14， 527 | 1 |
| 185538 | 2057 \％ 1 | 22524 | 05417 |  | ＋5447 | 653 | $855 \%$ | 10573 | 12554 | 14580 |  | 4 |
| 185927 | 21 141 | 22 56 1 | 03814 | ＋5634 | 45814 | － 571 | 8 Sei4 | 11127 | 123944 | 15 \＆ 5 | 1704 | \％ |
| $19: 24$ | $21 \quad 537$ | 225957 | 1210 | 3027 | 5240 | 7057 | $\square 310$ | 11524 | 13 3 40 | ［5［5 54 | \＄7 4.0 |  |
| 19721 | 2193 | 23394 | 167 | $3+24$ | 5637 | － 454 | 977 | 11 920 | 1378 | 15980 | 17 E ？ | 4 |
| 151117 | 211310 | 23750 | 110 | 3 E 20 | 5：034 | 7850 | 911 | ［1 13 17 | 131131 | 151147 | \％17 ${ }^{\text {\％}}$ | $\square$ |
| 191514 | 211727 | 23114.7 | 1140 | 3129 | 5 if 10 | 71247 | 9150 | 111743 | 131530 | 151745 | 17160 | 10 |
| 151810 | 212434 | 23 4544 | 11737 | 31613 | 51627 | 71543 | ${ }^{9}$ 20 57 | 112910 | 131927 | is 2140 | 17 14．5？ | 17 |
| 19237 | 212520 | 2319 ＊0 | 12133 | 32010 | 52223 | 72040 | 9225 | 11 256 | 132323 | 152536 | 172353 | 12 |
| 19273 | 312917 | 2323 17 | 12550 | 3247 | 32420 | 72437 | 52550 | 11293 | 132720 | ［5 2933 | 1727 47 | i 1 |
| 19310 | $\underline{19} 9313$ | 232733 | － 2546 | 3283 | 5310 | 72833 | 93046 | 1.330 | ： 3 11 10 | 15333 | 173146 | 17 |
| 443856 | 213710 | $2331 \geq 0$ | 13343 | －320 | 53413 | 73230 | 93443 | 11256 | 133513 | 12 3720 | 173541 | $\dagger$ |
| 16 3E 53 | 21 $1+1$ | 233525 | 13740 | 3 3556 | 5310 | 73626 | 9 $38+0$ | 114053 | 13399 | 15 $\leqslant 123$ | 173939 | 4 |
| 194250 | 21453 | 233923 | 14136 | 3 3953 | 5426 | 74023 | 9 912 36 | 116449 | 1341 | is 4514 | 124136 | \％ |
| 19846 | 214859 | 23419 | 12533 | 34748 | $\leq 463$ | $7+419$ | 4 4033 | 1145 | 11472 | 154016 | 174732 | $1{ }^{10}$ |
| 195043 | $215 \geqslant 56$ | 23 47 ：$k$ | 14529 | 34740 | 54959 | 74610 | 95039 | 115242 | 13505 | 155312 | 175127 | 19 |
| 195439 | 215653 | 235113 | 15326 | $55 ; 42$ | 55354 | 38.12 | ， $5: 26$ | $115{ }^{12} 5$ | 13545420 | 15579 | 1755 | 20 |
| 145836 | 27 － 49 | 23559 | 15752 | $\bigcirc 5339$ | 55752 | $7 \leq 69$ | 9583 | 12035 | 135852 | 1615 | 175922 | ＇ |
| 20232 | 2244 | 23596 | 2115 | 35836 | 6 549 | 8 － 6 | 10218 | 12＊32 | if 248 | $16 \quad 5 \quad 2$ | 18319 | 2 |
| 20629 | 22842 | 032 | $25_{2} 515$ | 4352 | $\square 545$ | 842 | $10 \leq 15$ | $12 \quad 829$ | 14 ¢ 45 | 16850 | $1{ }^{18} 715$ | 3 |
| 201025 | 2212 is | 0.1559 | 2812 | 4729 | 63 | 8.759 | 10102 | 121725 | ： 510 d2 | 16：1255 | 181912 | ${ }^{2} 4$ |
| 20：422 | 212 120 | 09055 | 215 | 41125 | $613 \pm 8$ | 811 15 | 10149 | 121422 | if 14 发 | $16: 652$ | $1 \mathrm{~B}_{6} 158$ | is |
| 201819 | 2220.2 | 01452 | 2175 | 41522 | 617.5 | A 1552 | 10185 | 122018 | 94 1E35 | 162048 | 18195 | 2 |
| 202215 | 222428 | 01548 | 2 25 | －19 18 | 6 2132 | 8 \％ 48 | 10222 | 12 2 24 15 | 142231 | 162145 | 1823 1 |  |
| 202612 | 222825 | 02245 | 22458 | 42315 | 62528 | 82345 | 102550 | $1228: 1$ | 142628 | ： 62811 | 18265 | 8 |
| 20308 | 271222 | 02612 | \％ 2885 | ＋2711 | 62525 | d． 2752 | 10 2 555 | 12128 | 143025 | 1632 38 | 1830 55 |  |
| 20345 |  | 03038 | 23251 | 4318 | ＊ 5321 | ＊ 3130 | 10.3354 | 1234 | 143421 | 163634 | 18345 |  |
| 20381 |  | 03435 |  | 4355 |  | 日 3535 | 10． 3748 |  | ：A 3018 |  | 183847 |  |
| 12 N ． | Feb． | M | Anst | M | ） | luty | A 1 | cer | Oct． | N | Dec． | 933 |
| 184244 | 204458 | 22351 | 03734 | 23511 | 438 | E 3621 | \＃ 3837 | 10404 | 1239 | 144117 | 163934 | ， |
| 18464 | 204854 | 223516 | 04131 | 23947 | 4421 | 64017 | 8431 | 10444 | 12431 | 144514 | 16439 | 2 |
| 185037 | 205254 | $22: 314$ | 04527 | 24344 | 4455 | $6 \pm 414$ | 8453 | 1048 | 124657 | 14 3910 | 164727 | 3 |
| 185434 | 205647 | 224711 | 0 048 24 | 24741 | 44954 | 64811 | 85024 | 10 52 37 | 125054 | 14537 | 1654 | 4 |
| 18．5830 | 37644 | 2254 ？ | 05320 | 25137 | 45350 | －537 | ES420 | 105634 | 125859 | 14573 | 165520 | ， |
| 19227 | 31414 | 22551 | 05917 | 255 湤 | $\pm 5747$ | 6564 | $858!7$ | 11030 | 125847 | 1510 | $165 \%$ | 4 |
| 19 \＆ 24 | 278 | 22590 | 4114 | 259 | 5 i 44 | 700 | 5214 | $1 \%$＋27 | 13243 | 15457 | 17 13 |  |
| 19：1020 | 211233 | $23 \quad 257$ | － 510 | 3327 | 5540 | 7357 | 5610 | 11 8 23 | 15640 | 15853 | $17.7=0$ | 8 |
| 191417 | 217630 | 23.654 | 197 | 3723 | 5.937 | 7759 | $9: 07$ | 111220 | 139036 | 151250 | 87116 |  |
| 19 1813 | 242027 | 231030 | 113 | 31120 | 51333 | 71150 | 9143 | 111616 | 131433 | 15 16 4t， | 17153 | 10 |
| 192210 | 212423 | 231467 | 1170 | 3916 | 51730 | $7{ }^{7} 47$ | 9 १¢ | $1120: 5$ | 13：830 | 152043 | 17100 | ： |
| 19 誯 | 29 2c 20 | $2 \pm 1843$ | 1205 | 31913 | 52176 | 71543 | 92156 | 11240 | 1325 | 152439 | 172256 |  |
| 19303 | 213716 | 232240 | 12453 | 32310 | 52523 | 72340 | 92532 | 71286 | 132623 | 152835 | 172653 |  |
| 19340 | 293613 | 232636 | 12849 | 3276 | 52915 | 72736 | 92949 | 11323 | $\bigcirc 33019$ | 153232 | 173049 | it |
| 193756 | 2140 | 233033 | $132+4$ 13643 | 3 3 3 3 | 53316 | 73123 | 983 | 193559 | 133416 | 153629 | $1734{ }^{1}$ | 4t |
| 15 <br> 19 <br> 19 <br> 15 | $\frac{21}{21} 448$ | 23 3729 | 13643 14019 | 3 3 3 3858 3 | $\begin{array}{cccc}5 & 37 & 13 \\ 3 & 4 & & 5\end{array}$ | 73579 |  | 113.650 114 11 | $\begin{array}{lllll}13 & 3 & 8 & 12 \\ 17 & 42\end{array}$ | 15 <br> 15 <br> 15 <br> 15 <br> 15 | 17 7842 |  |
| 17 19 89 19 4545 | 21 <br> 21 <br> 21 <br> 188 <br> 18 | 23 3826 |  | 33856 34252 | $\begin{array}{ccc}3 & 4 & 9 \\ 5 & 15 & 6\end{array}$ | 735 7 7 4 | 941 <br> 949 <br> 45 | $\begin{array}{ll}11 & 4 \\ 11 & 52 \\ 14 & 49\end{array}$ | 173429 | 15 <br> 1548 <br> 15 <br> 18 | 374229 <br> 1745 <br> 15 |  |
|  | 21 51 59 | －5 42310 |  | 3 42 <br> 3 46 <br> 18  |  | 7422 $7+19$ | $9+56$ 43 482 | $* 1$ 11 11 11 51 | $\begin{array}{ll}13 & 44 \\ 13 & 50 \\ 13\end{array}$ | 15 4819 | 174685 1758 1782 | 18 |
| 155739 | 216852 | 235016 | ＋5229 | 35045 | ${ }^{3} 5259$ | 75116 | －53 29 | 11554 | 135359 | 155612 | 175429 | 10 |
| 20135 | 2234 | 213412 | 15625 | 35442 | 55635 | 75512 | 33725 | 115 | 135755 | is 0 B | 175825 | ＂1 |
| 20532 | 22745 | 23589 | $\geq 022$ |  | ¢ 052 | 759 | 1012 | 1235 | 17） 15 | 1645 | 19 こ22 | 3 |
| 20.929 | 221142 | 025 | 2418 | 4235 | \％ 4 4 4 | ¢ 3 | 10518 | な－332 | 14 5 4 4 | 1681 | ： 46 | 23 |
| 20 ： 35 | 221538 | 062 | $28: 5$ | 4.32 | ¢ 845 | 8 72 | 40.15 | 121928 | 1498 | 161958 | 拢10：5 | 3 |
| 201722 | 221585 | 0.558 | 21212 | －1028 | 61242 | 81058 | 10：312 | 121525 | 141241 | 16 is 55 | 1814：1 | 85 |
| 202118 | 212331 | 01355 | 2168 | $41 \times 25$ | 61638 |  | 16178 | 121921 | 1417 5 | 16 19 5： | 1818 S | 3 |
| 202515 | 222728 | $0: 751$ | 2205 | 495 i | 62035 | 81851 | 10215 | $12 \geq 298$ | 142134 | 1623418 | 码 224 | 2 |
| 202711 | 2235 | 021 48 | 2241 | 42218 | $62+3 \%$ | E 2.248 | 10251 | 12.27 i4 | 142531 | 162744 | 洼26 1 | 28 |
| 30338 |  | Q 2545 | 2275 | ＋2615 | 62426 | E2045 | 102658 | 12 Fl | 142928 | 16314 | 182058 | 2 |
| 2037 |  | 0354 | 23454 | 43011 | 63224 | 83041 | 1032 il 4 | 12358 | 143524 | 163517 | \＄ 3554 | 39 |
| 2041 |  | 03338 |  | 434 |  | － $3+38$ | $1016{ }^{1}$ |  | 142725 |  | \％8 3751 | 31 |


| bat． | Feb | Mar． | naril | Max | lune | July | Abs | Sapt | Det． | Nes． | De |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 20 | 223424 | 03637 | 2 | ＋ 37 | © 3524 | 6 3737 | 103950 | ：2 38 | 144030 | 1638 |
| 路4544 | 204757 | 22 x¢ 21 | 04534 | 23850 | 4 41 | 53820 | $8 \div 134$ | 404347 | 1242 | 14.4817 | 1642 |
| 164940 | 20 5154 | 228217 | $\begin{aligned} & 04410 \\ & 049 \end{aligned}$ | 2 dix ${ }^{2}$ | 4450 | 64317 | $\begin{aligned} & 84530 \\ & 8 \\ & \hline 9 \end{aligned}$ | 10 10 10 50 | 1246 ${ }^{1}$ | 144613 | $16 \leqslant 30$ |
|  | 20 20505 585 | $\begin{array}{\|l} 27 \\ 22 \\ 2 \end{array} 601410$ | $\begin{aligned} & 04827 \\ & 05223 \end{aligned}$ | 2464 250 | 4 4 4 4 4 | 6.7 6.57 6.510 |  | 105940 105537 | 1249 57 | $1 \times 5210$ <br> 466 | $\begin{aligned} & 165027 \\ & 165927 \end{aligned}$ |
| 19 130 | 21343 | 22547 | O 5 2 | 25437 | 15650 | 455 | 85720 | 105535 | 1257 50 | 1503 | 1658 |
| 19527 | 21.40 | 235 | 1017 | 25923 | 047 | 659 |  | 11 | 17 | ＋5 40 |  |
| 49.23 | 211126 | 23 | 3 |  | $5{ }_{5}$ |  |  | 19 | 13 |  | 1 |
| 191310 | ${ }^{21} 15{ }^{53}$ | 23 ${ }^{2} 587$ | － 810 | ${ }_{3}{ }^{-1} 8$ | ${ }_{5}{ }^{8} 80$ | 75 | \％ 0 | 11 1123 | 13.78 | 15 1153 | 1710 |
| 159 | 2189 | 23： | $¢_{10} 10$ | ${ }^{3} 1919$ | 5 5 3i | 714 \％ 4 | \％it 3 | \％11916 | 位 1735 | 15 151506 | 仿得 |
| 19259 | 212733 | 231746 | 11959 | ${ }^{3} 1816$ | 52029 | 71846 | P20 59 | 312312 | 13 ิ1 29 | 15 $2 \mathrm{j}=2$ | ，721 |
| 1925 | 293119 | 33 2143 | 12355 | 32213 | 52426 | 72243 | O24 5E | 11179 | 132536 |  | ； 72 |
| 15 \％3 3 | z＋ 3516 | 232539 | 12752 | 326 | 528.8 | $7 \overline{763}$ | 978.5 | 1931 | 132922 | 153185 | 172951 |
| 19 3t | 213512 | 232936 | 13142 | 3305 | 53219 | 73036 | 53248 | 1135 | 13 13 15 | 153532 | 17 33 69 |
| 194058 | $29+3$ | 231332 | － 3546 | 3142 | 53616 | 73412 | $5{ }_{5}^{5} 46$ | 11785 | $1337: 5$ | 153929 | 173745 |
| 154.48 | 2147 | 233729 | － 34.42 |  | 52012 | 73829 | 7 2042 | ：1 12 19 | ＋3 4112 | 154325 | 174 |
| 164849 19.54 |  | 234185 | 14398 | 34155 345 4 4 | 544 5 5 | 74225 $7+322$ | 944 0 0 | 19 19.658 |  | 15 <br> 1722 <br> 5 <br> 5 | 1745 1749 |
| $155_{6} 52$ | 2：5e 55 | 23 49 9 | 15932 | 3.4848 | 5.5 | 750 青 7 | 952 | 115445 | ＇is 5 | 55 5315 | 175 |
| 20 ¢ 3 年 | ${ }^{22} 2758$ | 部 5 5 59 | ： 55 | 3 3 3 5 545 | S 5 55 58 | 7 54815 | $9{ }^{9} 568$ | 115848 | 135658 | 15 519 11 | 175728 |
| 20 <br> 20 <br> 20 <br> 185 | 22：48 | 135？ | ； 575 | 43： 18 | $4{ }^{4} 3$ | － 58 | 10 10 | 12 | 14. | 16 $\frac{2}{4}$ <br> 785 7 <br> 18  |  |
| 20 122E | 22 1年 18 | 055 | 2 | 453 | 6． 7 给 | $8{ }^{8} 5$ | 10818 | T2 to 31 | 14 18 | $16 \pm 1$ | 18598 |
| 201025 | 22 18 38 | 0.1 | $211: 5$ | $4{ }^{4} 11$ | － 3145 | 810 | 101215 | 垃3429 | 1－1244 | 位： 14.8 | 181314 |
| 202023 | 223234 | 01258 | 21511 | 4838 | ${ }_{6}^{6} 1541$ | 8， 13 sa | 1016 | 121824 | 14， 1641 | 1518 | ： 817 |
| 202418 | 222631 | 01155 | 2198 | 4172 | 61938 823 | 88.75 | 1030 | 123221 | 142017 | 16225 | 18 卒 |
| 202014 | 23 | 020 |  | 42121 | 62334 | 82151 | 1024 | 12 2617 | 142435 | ${ }^{4} 2648$ | 19254 |
| 203211 |  | 024.18 | $\underline{271}$ | -12517 42814 | ¢ 2731 | 992548 | 10281 | 123014 | 142834 |  | 1829 1 |
| 2036 |  | 02844 | 23057 | 48914 | 63127 | 88 | $10 ⿳ 亠 丷 厂 彡$ | 12 | 1432 | 1634 40 | IE 325 |
| 2040 |  | 0324 |  | 4 |  | 833 | 103554 |  | is 3624 |  | 1E 3654 |

# 1935 

| 1an | Fob | 1ar | April | May | 1 | July | Aus | Sept | Oc： | Nor． | Oec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1820 50 | 20431 | 223327 | 03540 | 23357 | 43690 | 6．34 27 | 83640 | 103853 | 123710 | 143923 | 163740 |
| 18.447 | 20470 | 223724 | 03938 | 23753 | 4427 | － 3823 | 84237 | 104250 | 12416 | 14420 | 1641 訧 |
| 184日 | 205057 | 224120 | 04313 | 24150 | 154 | 64220 | 84433 | 10 AE 46 | 1245 | 1447 ：6 | 164533 |
| $1852+0$ | 205453 | 224517 | 047 du | 24546 | 4380 | 64615 | 84830 | 10 50 | 1249 | 145；13 | 164929 |
| 185536 | 205850 | 224913 | 05146 | 24941 | ＋ 51.15 | 65013 | 85226 | 10.549 | 125258 | 14559 | 165325 |
| 19033 | 21246 | 225310 | 05523 | ＜ 5340 | ${ }^{4} 3553$ | 65410 | 936 33 | 10583 | 125653 | 1459 | 165723 |
| 19430 | 21643 | 22576 | 05920 | ＜ 5733 | 45749 | 6585 | 020 | 11233 | 13049 | 15 | 17119 |
| is 825 | 211039 | 3313 | 1316 | ¢ 31 | 5 515 | ； | 16 | 11 629 | 134 4e | 15 － 59 | 17516 |
| 191223 | $211+26$ | 23 1 59 | 1711 | 530 | $5 \quad 543$ | 76 | 813 | 111026 | 13842 | 151055 | 17912 |
| 19 16 19 | 211832 | 23850 | 1119 | 3.26 | 51139 | 7 7 95 | 911 | 111422 | 13：239 | 151452 | 17139 |
| 192016 | 312229 | 231253 | 1156 | 31322 | 51536 | 71552 | 516 | 111819 | 131635 | 151847 | 17175 |
| $15 \geqslant 412$ | 212626 | 231648 | 1192 | 11719 | 51932 | 71748 | 9202 | 112215 | 132052 | 452245 | 17212 |
| 19289 | 213022 | 232046 | 12259 | 32116 | 52329 | 72445 | 92350 | 112612 | 132429 | 152642 | 172458 |
| 19325 | 213419 | 232412 | 1 2655 | 32512 | 52725 | 72542 | 92755 | 11308 | 132825 | 153038 | 172555 |
| 19362 | 213815 | 232839 | 130 Sz | 3259 | 53122 | 72939 | 93152 | 11345 | 133222 | 159435 | 173252 |
| 193959 | 211212 | 233235 | 13448 | 33.5 | 53518 | 73335 | 93548 | 11382 | 1336 \％ 8 | 153831 | 173648 |
| 194355 | 21468 | 233632 | 13845 | 3372 | 53915 | 73） 32 | 93945 | 31458 | $13 \leq 015$ | 15 4228 | 174045 |
| 194752 | 21503 | 234028 | 142 42 | 34058 | 54312 | 74128 | 94342 | 114555 | 134719 | 154625 | 174443 |
| 195148 | 2154 | $23+425$ | 14638 | 14455 | 5478 | 74525 | 94738 | 1145 | 13488 | 155021 | 174838 |
| 193545 | 215758 | 234822 | 15035 | 34851 | 5515 | 7 ¢ 421 | 95735 | 11534a | 1352 ＊ | $155+18$ | 175234 |
| 175941 | $22 \quad 155$ | 235218 | 15431 | 35248 | 5551 | 75518 | 95531 | 11574 | 13561 | ¢5 5814 | 175631 |
| 20338 | 22551 | 235615 | －5828 | 35644 | 55858 | 75715 | 95928 | i2 1 dit | 135956 | 16211 | 18027 |
| 20734 | $22 \quad 98$ | 0011 | 3225 | ＋ 041 | 6 | 8 111 | 10324 | $12 \quad 537$ | 14351 | $16 \quad 67$ | $18+24$ |
| 201131 | 221344 | 048 | $\begin{array}{lll}2 & 6 & 21\end{array}$ | 4 4 38 | $6 \in 51$ | 8 5 <br>  8 | 10721 | 1295 | 14.75 | 16104 | 18.821 |
| 201528 | 2 E 1741 | 084 | 21017 | 4834 | \％ 1047 | 89 | 10 11：7 | 12139 | 14114 | 16146 | 181217 |
| 201924 | 222137 | 0121 | 2：414 | 41211 | 61444 | 8131 | \％0 1514 | 121727 | 141544 | 161757 | 181614 |
| 202321 | 222534 | 01557 | 21811 | 41627 | －18 18 | 61857 | 101911 | 122124 | 141940 | 16 2154 | 182010 |
| 202717 | 22.2930 | $0: 954$ | 2227 | 42024 | 62237 | 62054 | 10237 | 122530 | 142337 | 1 1\％ 2550 | 18207 |
| 203114 |  | 02351 | 226 | 42420 | 62634 | 82.450 | 10.37 | 122917 | 14.2733 | 162947 | 18283 |
| 203510 |  | 02747 | 2300 | 42817 | 53030 | 82.847 | 10310 | 123313 | 143130 | 16 33 43 | 18320 |
| 20397 |  | 03144 |  | $+3213$ |  | 83244 | 103457 |  | 143.526 |  | 183556 |

1936

| \％． | Fel） | － | Ancy | May | June | July | Aus | Seat | Oet． | Nor． | Dee． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 183953 | 2042 6 | 223626 | 03840 | 23656 | 4395 | 63720 | 83939 | 10415 ？ | 12409 | 144222 | 164039 |
| 184350 | 20463 | 224023 | 04.236 | 24033 | 4436 | － 4123 | 84336 | 104549 | 1244 | 144619 | 164436 |
| 184746 | 204959 | $22-4420$ | 04633 | 24449 | 447 | 64519 | 84732 | 104946 | $12+8{ }^{1}$ | 145015 | 164832 |
| 185143 | 205356 | 224816 | 05029 | $2+845$ | 43059 | $649: 6$ | 85129 | 105342 | 125139 | 1451：2 | 105229 |
| 185539 | 205753 | 225213 | 05426 | 25242 | $4545 i$ | t 5312 | 85530 | 105739 | 125535 | 14589 | 165625 |
| 185936 | 21147 | 22569 | 05822 | 25639 | 45852 | 6579 | 85922 | 11135 | 125952 | 152 | 17022 |
| 19332 | $21 \quad 546$ | 2306 | 1219 | 3035 | 3249 | 716 | 9319 | $\begin{array}{ll}11 & 5 \\ 11\end{array}$ | $13 \quad 349$ | 156 | 17418 |
| 19729 | 21 多：2 | 2342 | 16 ：5 | 3432 | 5615 | 752 | 9715 | 11928 | 13745 | 15 － 58 | 17815 |
| 191926 | 211339 | 23759 | 11012 | 3825 | 510.42 | 7859 | 9 $11: 2$ | 111325 | 13 T1 +2 | 151355 | 171212 |
| 191522 | 291735 | 231155 | 1149 | 31235 | 51439 | 71255 | 9158 | 111722 | 131538 | 151751 | 1716 |
| 151919 | 212132 | 231552 | 1185 | 31622 | $5: 835$ | 71652 | 9195 | 11218 | 131935 | 152148 | 1720 |
| 192315 | 2\％ 2528 | 231948 | 122 | 32018 | 52232 | 72045 | 9232 | 112515 | 132331 | 152544 | 1724 |
| 192712 | 182925 | 232345 | 12558 | 3 2415 | 52028 | 72445 | 92558 | 112911 | 132420 | 152941 | 172758 |
| 1931 B | 21 3） 22 | 232742 | 12055 | $328: 1$ | 53025 | 72841 | 93055 | 1\％338 | 133824 | 153338 | 173154 |
| 19355 | 213718 | 233138 | 13351 | 3328 | 53428 | 73238 | 93451 | 1137 | 133521 | 153734 | 173551 |
| 19391 | 2141 is | 233535 | 13748 | 3365 | 53818 | 7 30e 35 | $738 \div 8$ | 1141 | 133977 | 154131 | 173947 |
| $19+258$ | 214511 | 233711 | 14444 | 3401 | 5.4214 | 7 4031 | $942+4$ | 11445 | $13+314$ | 154527 | 17 43 4．4 |
| 794655 | 21498 | 234328 | 14541 | 3.1358 | $54 E 11$ | 74428 | 94641 | 11 ＋8 5\％ | 134719 | 154924 | 174748 |
| 195050 | 21534 | 234724 | $1+388$ | 3 H 754 | － 507 | 74824 | 55037 | 115251 | 1351 | 155320 | 175137 |
| 195448 | 21570 | 235121 | 1533.4 | 3 5151 | $55 \div 4$ | 75221 | $95 \div 34$ | 115047 | 1355 | 155717 | 175534 |
| 1958 d4 | 22057 | 235517 | 15731 | $35 \% 4$ ？ | 5 50， 1 | 75617 | 95831 | 12044 | 13590 | 10 ¢ 13 | 175530 |
| 20241 | 22454 | 235914 | 2177 | 25944 | \＆ 157 | 8014 | $10 \quad 227$ | 1244 | 13257 | $10 \quad 5: 0$ | 18 3 <br> 17  |
| 20638 | 22851 | 0 O 311 |  | － 300 | $6 \quad 554$ | $8+10$ | 10 ¢ 2.4 | $12 \quad 837$ | 14653 | $16 \quad 97$ | $18 \quad 723$ |
| 201034 | 221247 | 077 | 2920 | 4737 | －950 | 887 | $10: 20$ | 121233 | 141050 | 16133 | 481120 |
| 201430 | 221644 | 011 | 21317 | 41134 | 61747 | 8 12 <br> 18  | 101417 | 121630 | $1 \div 1446$ | 16170 | 181516 |
| 201627 | 222040 | 0150 | 21713 | ＋1330 | 61743 | 8160 | 101213 | 122026 | 17 1843 | 162056 | 181913 |
| 202224 | 22 2437 | 01857 | 22110 | $+1527$ | é 2140 | 81957 | 102210 | 122423 | $1+2240$ | 1624 53 | 182310 |
| 202620 | 222833 | 02253 | 2257 | 42321 | $6253{ }^{\circ}$ | 82353 | 1026 | ：2 2820 | 142636 | 152849 | 1827 |
| 203017 | 223231 | 02650 | 229 | 42720 | 62933 | 62750 | 10303 | 123216 | 143033 | 103246 | 1831 |
| 203413 |  | 03045 | 233 | $+3116$ | 63330 | 831 UE | 10340 | 123613 | 143229 | 163642 | 18345 |
| 203810 |  | 02.443 |  | 43513 |  | ¢ 3543 | 103756 |  | 143835 |  | 183856 |



| $17 n$ | $F 2$ | Mis | Ap | Ma | Jufie | July | hut | cor | Ore | No： | Dre | 1938 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 78485 | 20 4 | 22.3432 | 03.48 | 2351 | ＋ 3715 | 63532 | 83745 | －1\％ 3956 | $13^{4} 30^{\prime 4}$ | 1＊ 4028 | 1t， 3044 | 1 |
|  | 2048 | 22 2828 | （0）4 41 | 23858 | 4411 | t 3936 | 8 － 411 | $10+15$ | $12+211$ | 144814 | 10424 | $\pm$ |
| 164948 | 2052 | IF 4225 | 04.48 | I 1255 | 445 | 64925 | 白 538 | 10．751 | 12 H 7 | 14 非 ${ }^{\text {2 }} 1$ | $10^{16} 4037$ | 1 |
| ： 595 | 30558 | 2142 2 ？ | 0485 | 24658 | ＋49 4 | 64721 | 84534 | 10 sid | 12504 | 145217 | 185034 | 4 |
| $45^{5} 574$ | 20 5\％54 | 225018 | 05231 | 250 ＋6 | 4551 | － 5118 | 85391 | 10 5 5 did | 12.54 | 14 4514 | 15.5450 | 5 |
| 19 ： | 21 1 $\leqslant_{1}$ | 225414 | O56 5 | 25441 | 45657 | 65594 | 85729 | 1059 | 1.2575 | 15010 | 165827 | 6 |
| is 3 | 21748 | 235811 | 10 － | 25841 | $5 \quad 054$ | 65911 | ¢ 124 | 1913 | 13 1 54 | $15 \times 7$ | 17224 | 7 |
| 1943 | 7i 1144 | 2728 | － 427 | $\cdots 237$ | 5 ¢ 59 | 7 7 | $\pm 521$ | 1： 734 | 13550 | 15 E ？ | 17620 | $E$ |
| 19132？ | 211541 | 2564 | － 817 | 3 c 34 | 5847 | 7 | $5{ }^{5} 17$ | 11 ： 930 | 7－2 447 | 15120 | 171097 | 4 |
| $19: 24$ | 211937 | 2310 | 11214 | 31030 | 512.48 | ${ }_{7} 110$ | 91314 | 111527 | 13 134？ | 15 15 E7 | 171413 | 10 |
| 19217 | 212334 | 23 1357 | 11010 | 31427 | 59640 | 71457 | ¢ 1710 | 11 9\％23 | 1：174 | 151953 | 171810 | 11 |
| 792517 | 212731 | 231756 | 1207 | 31821 | 53037 | 71854 | 9217 | 1120 | 18.713 | 152350 | 17226 | 13 |
| 192914 | 213127 | 252150 | 1243 | 32220 | 52433 | 72250 | 9253 | 1127 is | 132533 | 152746 | 77263 | 13 |
| 193540 | 213523 | 232547 | 1280 | 37617 | 52830 | 72647 | $\bigcirc 290$ | 193115 | 132030 | 153183 | 122959 | 94 |
| 1937 | 313920 | 232815 | 13157 | J3013 | 5320 | 73043 | 93250 | 19310 | 133320 | is 3579 | 17335 | 13 |
|  | 214317 | 253340 | 1351 | $33+10$ | 53623 | 73440 | 9365 | 11 346 | 133722 | 153 Iti | 173753 | 15 |
| 19450 | 24 47 ：3 | 233737 | 13950 | 3386 | 54020 | $3{ }^{3} 586$ | ［10 49 | 11433 | 13 17 19 | 154312 | 17419 | 17 |
| 19485 | $215: 10$ | 23 193 | 14340 | 3423 | 54416 | 7－23 3 | 94446 | 114639 | $13-516$ | 15.478 | 175 | 18 |
| 155253 | 21556 | 234530 | 14743 | 3 45 57 | 51813 | 74529 | 54848 | 13505 | $13+912$ | $155: 24$ | 17 19 42 | 19 |
| 195050 | 2159 | 23 458 | 1513 | 3 4， 56 | 5529 | 75026 | 95739 | 115452 | 1355 | 15 5522 | 175338 | 20 |
| 200 | 2 E 30 | 235321 | 15536 | 31533 | $55 \%$ e | 75423 | 956 | 115848 | 13575 | 15859 | 175735 | 23 |
| $20+43$ |  | 235710 | 15932 | 3 37 | 602 | 75819 | 詨 012 | 12240 | $1+3$ | 16 I $3: 5$ | 18132 | 23 |
| 20 \＆ 30 | 221052 | 0116 | 2327 | 7140 | 6359 | $8 \geq 10$ | $10 \times 26$ | 12642 | 14459 | $16>12$ | 18528 | I3 |
| $20: 336$ | 2三14 49 | 0512 | 7726 | \＃ 542 | 6755 | 8 610 | 40825 | 121039 | 12 E 55 | 16178 | 18 92 | 24 |
| 201632 | 22 地梅 | 09 | 2112 | 4.39 | 61132 | 6109 | to 1222 | 121435 | $1 \times 12$ | 1615 | 16：322 | 35 |
| 201029 | 22724 | 0136 | 2：319 | ＋1335 | © 1.549 | 8145 | 101519 | 12183 | $1+1648$ | 16191 | 181718 | 26 |
| 20.2425 | 25 26.30 | 0172 | 21915 | 41732 | 01945 | $8: 82$ | 102015 | 122228 | 14． $20+5$ | 162258 | 162195 | 27 |
| 202822 | 223035 | 0205 | 82312 | 42128 | 42342 | E 2158 | 102412 | 122625 | $1428+1$ | 16.2655 | 182511 | 2管 |
| 203219 |  | 02654 | 2278 | ＋2525 | 52738 | 8255 | 10288 | 123022 | ：4 2.636 | 163051 | 9226 | 29 |
| 203615 |  | 02852 | 2315 | 42522 | 63135 | 9 2552 | 903 3 | 12348 | 143234 | 163448 | 1833 | 30 |
| 204012 |  | 03248 |  | 43316 |  | e 3 3 48 | 1036 |  | 143631 |  | T 37 | 34 |


| 13．． | Feb | ar | aprs 1 | May | Junc | Juty | 415 | Seb | c： | Nor | De |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1640 57 | 204317 | 223534 | 03547 | ${ }_{2} 3$ 34 | +3617 | t 34 34 |  | 1039 | 123717 | 1439 | 163747 |
| 18.485 | 2047 | 223734 | 0394 | 2 C | ¢ 4014 | $638 \geq 0$ | E $20 \times 4$ | 104257 | $12 \div 113$ | 14 往 27 | 164143 |
| 184851 | 2057 | $22+15$ | 0， 3340 | 2 | 4 4 4 4 | 64227 | $8+8$ $8+48$ | 10 465 5 | $12 \times 5$ 10 |  | 164540 |
| 185247 | 2053 | $22+5{ }^{2} 4$ | 14737 | $2{ }^{2} 5$ | 4 48 | $66^{6} 8.24$ | 84837 | 10 50 50 | 1259 | 145120 | 169936 |
| 19854 | 205537 | 272930 | i） 5134 | 71750 | 452 | － 50.20 | 85233 | 10 54585 | 1233 | 14 5516 | 16.53 |
| 198 | 21.254 | 225317 | 05530 | $\pm 5347$ | 4560 | 6517 | ع5630 | 105643 | 12570 | 145913 | 185729 |
| $19+37$ | 21.650 | $22^{2} 5714$ | 05527 | 25743 | 15956 | 65813 | － | 11240 | 13056 | is 3 |  |
| 178 | 21 1147 | $23: 10$ |  | 40 | 3 | 7210 | － | 11 | ${ }_{13}{ }^{3}+53$ | 15 |  |
| 191230 | 21.444 | 2357 | 1720 | ${ }^{3} 5.36$ | 750 | 766 | － 820 | 11.103 | 13848 | 1511 |  |
| 191526 | 211840 | 23.8 | 11116 | $3{ }^{3} 933$ | 51145 | 7103 | 91215 | 111429 | 131246 | 15 514 | 171310 |
| 192023 | 212736 | 23130 | $1{ }^{15} 13$ | 31329 | 51543 | 71559 | ¢ 14.13 | 111826 | 131542 | 151855 | 171712 |
| 792420 | 21263 | 23965 | 199 | 31776 | ¢ 1919 | 7175 | ${ }_{5} 30$ | ：11222 | 132039 | 152259 | 1721 |
| 192816 | 213029 | 232033 | 1236 | 32123 | 52336 | 72153 | $5{ }^{5} 4$ | 112615 | 132435 | 1526 ¢19 | 1725 |
| 19932：3 | $2114{ }^{\text {26 }}$ | 232449 | ［27 3 | ${ }^{3} 2519$ | 52732 | 72548 | 9382 | $1130: 5$ | ： 132832 | $1530+5$ | 1729 |
| 1936 | 21 18 27 | 232846 | 13059 | 32916 | 53129 | 72968 | \％ 315 | 111412 | 133229 | $153+12$ | 173258 |
| 1949 | 214219 | 231213 | 13456 | 33 Bl 12 | 53525 | 73742 | \％ 355 | 1138 | 133525 | 1538 㐌 | 173655 |
| 194482 | 25： 4516 | 233639 | 13852 | 337 3 3 | 55923 | 73719 | 9395 |  | $13+402$ | 154235 |  |
|  | 215012 | 234036 <br> 23 <br> 4 | $1424 \%$ 14658 | $\begin{array}{llll}3 & 41 \\ 3 & 45\end{array}$ | 54319 <br> 547 | 74135 | 9.439 847 45 | 1145 48 | 134888 | ！ 5454631 | 174448 |
| 19595 195552 | ${ }^{21} 515$ | $23+8829$ |  | \％ 3 | 5 517112 | 74532 |  |  | 134815 |  | 1784845 |
| 195948 | 27.2 | 235225 | 15418 | 35255 | 5559 | 75925 | ¢ 5578 | 17 575 | ${ }_{13} 568$ | 155821 | 175638 |
| 20345 | $22 \quad 558$ | 235622 | 1585 | 35652 | 559 | 75722 | 55935 | 12 148 | 180 | 10216 | 8 034 |
| 20.742 | 22.555 | O 018 | $2 \quad 31$ | 4048 | 631 | $3{ }^{3} 18$ |  | 12544 | 14 |  |  |
| 20.1138 | 22， 351 | － 415 | 2 \％ 28 | 4.45 | 6.659 | 日 515 | 10.72 B | $125 \leqslant 1$ | 14758 | $1610: 1$ | 18817 |
| 201535 | 221748 | 0813 | 510 ${ }^{2} 5$ | 484 | 61055 | a 0 | 10：124 | 129338 | 14， 115 5 | 1614 | 181224 |
| 201431 | 222145 | 0128 | 21421 | 41238 | 61451 | 813 | 10 9529 | 12974 | 1415 | 1618 | 181624 |
| 202328 | 222541 | 0165 | $\underline{21418}$ | 41634 | ¢1848 | 3 17 | 161918 | 12333 | 14 1947 | 16220 | 18 25 ¢ 7 |
| 202724 | 222938 | 020 | 22214 | 42031 | －2244 | 厚 214 | 102314 | 17 | $1<2344$ | 14.2557 | 1824：4 |
| $\begin{aligned} & 203549 \\ & 2035: 4 \end{aligned}$ |  | $\begin{aligned} & 07754 \\ & 03151 \end{aligned}$ | 23.07 | $\begin{aligned} & 4 \geqslant 824 \\ & 43221 \end{aligned}$ | 63937 | $\begin{aligned} & 82854 \\ & 13259 \end{aligned}$ | $\left\lvert\, \begin{aligned} & 1031 \\ & 1035 \end{aligned}\right.$ | 12320 | $143737$ | 163350 | $\begin{array}{l\|l\|} \hline 832 \\ 1836 \end{array}$ |

1939

| － |  <br>  <br>  |
| :---: | :---: |
| $\stackrel{3}{2}$ |  <br>  <br>  |
| نٌ |  <br>  <br>  |
| 号 |  <br>  <br>  |
| $\stackrel{+}{4}$ |  <br>  <br>  |
| 年 |  <br>  <br>  |
| 旁 |  <br>  <br>  |
| 安 |  <br>  <br>  |
|  |  <br>  <br>  |
| 光 |  <br>  <br>  |
| － |  <br>  <br>  |
| $\stackrel{5}{4}$ |  <br>  <br>  |


| 1941 | 32 F | $5 \times 6$. | Mar | Abrl | May | June | July | Auc | Sept． | Oct | Nov． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 484250 | 204512 | 223536 | 03749 | 2330 | 4366 | 63635 | 53248 | $10.11{ }^{2}$ | 123515 | 14413 | 163948 |
| 2 | 1845 | 20499 | 223932 | 04145 | 2102 | 44215 | 64032 | 84245 | 10 44 59 | 124315 | $1+4529$ | 464344 |
| I | 185052 | 2055 | 22 行 29 | 04542 | 2 和 ${ }^{\text {a }}$ | $4{ }^{4}+6$ | 64428 | 84641 | 10 ce 55 | 124111 | 144924 | 164341 |
| 4 | 14548 | 20572 | 224725 | 04539 | $2 \cdot 1755$ | 450 E | 64825 | ¢ 5038 | $10525 t$ | 1231 | 145321 | 16513.8 |
| ${ }_{5}$ | 185 5 行 | 2155 | 125122 | 05335 | 25851 | 4545 | 6523 | 85435 | $105 \mathrm{E} 4 \hat{E}$ | 1255 | 145717 | 165534 |
| b | 1924 | 21455 | 225810 | 05731 | 25540 | ＋58 4 | 65616 | 25． 31 | 11644 | 1259 | 15 i it | 165931 |
| ， | 19 ¢ 10 | 21 8 S 1 | 22508 | 1 128 | 25943 | $5: 38$ | 7014 | 9226 | 11441 | 13257 | is 5 11 | 17327 |
| 8 | 191035 | 211248 | 23 3：1 | 1525 | 3 3：1 | 5554 | 7411 | \％ 624 | 11 E 37 | 13554 | 1577 | $17 \quad 34$ |
| 9 | 191431 | 21 1644 | 2378 | 1921 | 3738 | 5951 | $7 \quad 88$ | 91021 | 111234 | 131050 | ［513 | 17 11 20 |
| 0 | 191628 | 212041 | 23115 | 11918 | 31134 | 51147 | 7124 | 51417 | 111630 | 131447 | 15170 | 17.517 |
| 15 | 192224 | 212430 | 23159 | 11714 | 31531 | 5174 | 7161 | 51814 | 112027 | 13124 | 752057 | 171913 |
| 12 | 192821 | 212834 | 231658 | 1 2 11 | 34927 | 52147 | 71957 | 92210 | 112425 | 132240 | $152 \times 53$ | 172318 |
| 13 | 193017 | 213231 | 232537 | $\cdots 257$ | 32581 | 52537 | 72354 | $\pm 267$ | 112820 | 132637 | 158850 | 17277 |
| 17 | 193414 | 213627 | 23 2651 | 1294 | 52720 | 52934 | 72750 | 5304 | 11324 | 135033 | 1532 ac | ${ }_{6} 7815$ |
| 15 | 153811 | 214024 | 23.3017 | － 370 | 33117 | 53330 | 73147 | 9340 | 113613 | 133430 | 15 36， 3 | 17550 |
| is | 19427 | 214420 | 23 3444 | 13657 | 33514 | 53727 | 73543 | 4375 | 114010 | 133826 | 15.0 | 173854 |
| if | 19464 | 214817 | 233840 | 14053 | 33910 | 54123 | 73910 | 94153 | 11446 | 13.223 | 15 44 36 | 174253 |
| 18 | 19500 | 215213 | 23 42 57 | 1 4450 | 3437 | 54520 | 74337 | 94550 | 11483 | 134619 | 154833 | 174647 |
| ： 0 | 195357 | 215610 | 234533 | 14847 | 3473 | 54910 | 74733 | 94546 | 115159 | 135016 | 155275 | 175046 |
| \％ | 105754 | 2207 | 235030 | 15243 | 3510 | 55313 | 75130 | 953 43 | \＄155 5e | 135413 | 155 拖 | 175442 |
|  | $20 \quad 150$ | 2243 | 23． 5427 | － 5540 | 35456 | 55710 | 75528 | $\bigcirc 5739$ | 11595 | 1351 | 16022 | 175839 |
| 22 | 20854 | $22 \quad 50$ | 2358 | 20.15 | 35653 | \％ 16 | 35523 | 10.10 | 123 99 | 1420 | $16{ }^{16} 419$ | 18236 |
| 29 | 20943 | 22 1：56 | 0220 | $2+33$ | 4247 | 653 | 8319 | 10.5 | 12,74 | 1462 | 16 E：5 | 18.632 |
| 14 | 201340 | 221553 | ［6： 616 | 2820 | 4685 | ¢ 859 | E 715 | 10.29 | 121142 | 14 \％ 59 | 161212 | 181029 |
| 25 | 201736 | 221945 | 01013 | 21126 | 41043 | 61256 | 81112 | 101326 | 121519 | 141355 | 16169 | 181425 |
| 50 | 202133 | 222346 | 0149 | $\frac{2}{2} 1622$ | 41439 | 61552 | 815 | to 1722 | 121955 | 141752 | 1620 | 1818 21 |
| 27 | 202529 | 222742 | 0186 | 22019 | －1835 | E 2048 | ¢ 196 | 102919 | 1223 | 142148 | 16242 | 182218 |
| 28 | 202926 | 223135 | 02 L | $22+16$ | 42232 | 6． 2445 | E23 2 | 10 2t 95 | 122728 | 142545 | 162758 | 182615 |
| 29 | 203322 |  | 02559 | 22812 | 4262 ？ | 62842 | E 3655 | 107012 | 123125 | 142942 | 163155 | 183011 |
| 30 | 203719 |  | 02956 | 2329 | 43015 | 63239 | 83055 | 10338 | 123522 | 143338 | 163551 | 1834 |
| 31 | $20 \leq 115$ |  | 0355 |  | 43.422 |  | ع $3<57$ | 1037 |  | 14 3i 35 |  | 1638 |

1942

| 「． | $F=6$ | Mar | Abril | May | Jun | July | Aus | Sept． | Oct． | No． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 78429 | 204414 | 233436 | 03659 | 2 35 | ＋3721 | 53538 | 8375 | 1040 | 123820 | $1+403.4$ | 143050 |
| 184558 | 204811 | 27 383 | 040 把 | 2394 | 4 4117 | 63934 | 84147 | 10 14 0 | 124217 | 144430 | 164247 |
| 184954 | 2052 | $22+231$ | 04484 | 2431 | 45514 | 64331 | $84^{515} 4$ | 104357 | 124614 | 144827 | 167643 |
| 㑑5351 | 20564 | 22.5628 | 04849 | 24857 | 4 4.510 | 6478 | 84940 | 105154 | 125010 | 145233 | 165040 |
| 185747 | 2101 | 225024 | 05237 | 25054 | 453 | $\leq 5124$ | 85337 | 103550 | 12307 | 1415620 | 165436 |
| 1914 | 2153 | 22 507 21 | 05634 | 25450 | \＃ 57 ？ | 55520 | 85733 | 1059 4 | 1358 | 15015 | 15 5883 |
| $19 \quad 5 \cdot 10$ | 21.754 | 225817 | 1030 | 25847 | 5 y 0 | 6 6 5 17 | 9130 | 11 3 13 | 1320 | 15413 | $\begin{array}{ll}17 & 2\end{array}$ |
| $10 \quad 937$ | 211150 | 23214 | 1427 | 3243 | 5457 | 7313 | 9527 | 11740 | 13556 | 15 B 9 | 17636 |
| 191334 | 211547 | 23610 | 1823 | 3640 | 5853 | 7 7：0 | 9923 | 911136 | 13 F 53 | 15126 | 171023 |
| 101730 | $2+1943$ | 23107 | 1220 | 34037 | 51250 | 7116 | 91320 | 11 15 13 | 131349 | 15163 | 171419 |
| 192127 | 212340 | 231\％3 | 1 1617 | 31433 |  | 7153 | 91715 | 11829 | 13776 | 151959 | 171816 |
| 912523 | 212736 | 2118 | ： 2013 | 31830 | 520.13 | 7190 | 92113 | 1123 2t | 132143 | 152356 | 172212 |
| 192920 | $213 \div 33$ | 232157 | 12410 | 3228 | 52439 | 72256 | 9259 | 112723 | 132539 | 152752 | 97269 |
| 19 I3 16 | 213530 | 232533 | － 266 | 32.62 | 52836 | 72653 | 9296 | 112119 | 112936 | 153149 | 1730 |
| 193713 | 213920 | 232950 | 1323 | 53019 | 53231 | 73049 | 9332 | 11259 | 133332 | 153545 | 17342 |
| 19419 | 21.433 | $2{ }^{2} 3546$ | 135 | 3 3 316 | 5368 | 7348 | 93659 | 113912 | 133729 | $1539+7$ | 17375 |
| $19+56$ | 214719 | 233743 | 13955 | 32912 | 54025 | 7388 | 94056 | 1143 | 134125 | 154338 | 174155 |
| 19193 | 215116 | 23 ， 15 | 1435 | 3.42 | 54422 | 74239 | 94452 | 11 475 | 13452 | 154735 | 174552 |
| 105259 | 215512 | 23.538 | 14749 | 3456 | 54819 | $7 \cdot 1636$ | 7 48.49 | 11512 | 134918 | 155132 | $17 \times 548$ |
| 195656 | 21599 | 23－1732 | 151 ＋5 | 3502 | 55215 | 75032 | 95245 | 115458 | 135315 | 155528 | 175345 |
| 20057 | $22 \quad 35$ | 235329 | ： $55 \pm 2$ | ＋ 5350 | 55612 | 75428 | 95642 | 115855 | $135 \% 12$ | 155935 | 17574 |
| 2044 | 2272 | 23575 | －59． 9.9 | $\underline{3} 5759$ | 508 | 75525 | 10039 | 12.25 | 141 E | 16 321 | $18 \quad 138$ |
| 20845 | 22 10 59 | 0122 | 2335 | 4152 | 645 | E 222 | 10 － 35 | 12648 | 145 | 1去 78 | t6 535 |
| $2012+2$ | 221455 | $0 ¢ 19$ | 2732 | 4548 | 5 E 2 | $\varepsilon 610$ | 10 盛31 | 121045 | 14.9 | 1619 14 | 1893 |
| 201616 | 221852 | 0915 | 21128 | 4945 | 51155 | 81015 | 101228 | $1214+1$ | 14 ： 12 | 161511 | $1 \mathrm{E}^{13} \mathrm{~L}$ |
| 202035 | 222248 | －1312 | $\geq 1525$ | 41319 | 61555 | 81411 | 101625 | 12 1038 | 141654 | \＄6197 | 161724 |
| 202432 | 222645 | 0178 | 21929 | 41738 | ¢ 1959 | \＄198 | 102021 | 122234 | 142051 | IE 23 | 182121 |
| 202828 | $2230+1$ | 0215 | 22318 | 42115 | 52348 | 8225 | $102+18$ | 122631 | 142447 | 46 271 | 1825 |
| 203225 |  | 025 \％ | 22714 | 42531 | － 274 | 8261 | 102814 | 123027 | 1428 64 | 163057 | 182514 |
| 203621 |  | 02858 | 2311 | 42928 | ［5 3141 | 6 985 | 103211 | $123+24$ | 143240 | 1614 5＊ | 183210 |
| 2040 18 |  | 03254 |  | 43324 |  | 83354 | 10367 |  | 143637 |  | 18377 |

1943

| Jan． | cob | Ma | Aaril | Piay | Junc | buty | Aus． | EP | Ort． | ＋ar |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1841 | 2043 | 2233 | 03 | 23410 | 43 | 63 | a 3653 | 1039 | 123723 | 39 |  |
| 1845 | T047 | 2237 | 03550 | 288 | ＋ 4020 | 63835 | 8 40 50 | 1043 | 1241 \％9 | 144233 | $164 i 49$ |
| 184857 | 205110 | 224133 | 04346 | 2423 | ＋1445 | 64233 | 8 \％ 46 | ic 46 | 124516 | 144729 | 104546 |
| 185253 | 2055 | 224530 | 04743 | 2460 | $4+813$ | 64638 | 8 8 4 | 10 5956 | $12+5$＋3． | 145126 | 1689 |
| ${ }_{16} 5650$ | 2059 | $22 \div 925$ | 05140 | 24556 | ＋529 | 65025 | \＆ 5239 | 105453 | 12539 | 14 5522 | 165 5 |
| 19046 | 2130 | 275323 | 05536 | 25353 | 456 | 65423 | $\square^{5} 56$ | 105849 | 1257 | 145 | 1557 |
| ${ }^{18} 4.43$ | 21.556 | 225720 | 05933 |  | 50.3 | 65819 | 9.13 | $112+6$ | 13 |  | 17 |
| 19.8 | 211053 | 23915 |  | 146 | 5 5 5 | 316 |  | $11{ }^{11} 5$ | 15．459 | 15712 |  |
| 191235 | 211449 | 23513 | $1{ }^{1} 25$ | 542 | 756 | 7.5 |  | 11 ¢0 39 | $13: 55$ | 15118 |  |
| $\begin{aligned} & 191633 \\ & 192029 \end{aligned}$ | 2198 2128 | ${ }^{23} 515$ | 1 1122 | 3979 | ${ }^{5} 11152$ | 710 | 912 | 111436 | 131252 | 1515 | 17 |
| $\begin{aligned} & 192029 \\ & 192426 \end{aligned}$ | $\frac{21}{2126} \frac{18}{29}$ | 7311 | 11519 1915 | 31736 31732 | 5 5 5 1545 | 714 | $8{ }^{9} 1619$ | 111832 | 131648 | 15 | $1717: 8$ |
| 192827 | 213035 | $2{ }^{2} 2039$ | 12312 | 3 217 | 5 23 － 2 | 7295 | 924 | 112228 | 132045 1324 1 | is 2258 | 17 25 |
| 193219 | 213.32 | 23245 | ； 27 \％ | 3253 | $52 \% 3$ 3 | 7255 | 928 星 | 11.1025 | 13 24.4 | ${ }_{15} \frac{15}{26} 505$ | 17 2518 |
| 193615 | 313829 | 23285 | 131 | 3292 | 53135 | 72952 | 9325 | 113418 | 132235 | 4， 3448 | 173 |
| 184012 | 214225 | 2331 － | 135 | 3 3 3318 | 53532 | 73348 | ¢ 361 | 11 部15 | 131831 | 153844 | 1737 |
| 19 4： 19 | 214692 | 23 36 3 ¢ | 13E58 |  | 53928 | 73745 | ¢ 3 O 5 E | $11+2!1$ | 134028 | 154241 | 174058 |
| 494 | 215018 | $2{ }^{4} 1642$ | 14255 | 3.4111 | 54325 | 7414 | 9 Caj 55 | 11 ＋6： | 13.4424 | 154637 |  |
| 45 52 | 215415 | 23448 | 14851 | 3458 | 5－1721 | 74536 | \％ 4751 | 1150 | 13 4829 | 155034 | 17 |
| ${ }^{19} 5558$ | 215911 | $\underline{23} 4835$ | $150+8$ | 3 ${ }^{4}+1$ | 55118 | 74934 | 95148 | 1154 | 1351 | t5 5431 |  |
| 79 595 | 22 | 235231 | 15.14 | 3531 | 55514 | 75131 | 95544 | 115757 | 135014 | 155827 | 175 |
| 20.351 | 22.8 | 255628 | －5841 | 35658 | 55919 | 75728 | ¢ 59.41 | 13154 | 14010 | 16224 | 18. |
| 20.76 | 22：0 ${ }^{1}$ | 034 | 2 2 | 054 | 637 | E 124 | 10337 | 12550 | 14 \＆ | $16 \quad 1620$ | 19 |
| 2011 44 | 2F 1357 | － 121 | 26341 | 45 | 574 | 21 | 10 734 | $1 \overline{18} 9$ | 14 | $1{ }_{16} 1017$ |  |
| 201511 | 23 17 54 | － 818 | 21031 | F 47 | 611 ； | 317 | 101130 | 1213 4．4 |  | ：E14 13 |  |
| 201637 | 22 2131 | 912：4 | 214 | ［12 44 | －1457 | $8 \cdot 314$ | 101527 | 121740 | $44155^{7}$ | 161810 |  |
| 202334 | 22.2547 | 01611 | －1824 | 41640 | $6: 854$ | 日 1710 | 101424 | $1221 \%$ | it 195 | ：1226 | 181818 |
| 20 \％ 31 | 9＊${ }^{\text {a }}$ | 020 | 322 | 42030 | － 1250 | 8217 | 103320 | 122533 | 142350 | 1826 26 | 192420 |
| 203127 |  | 924 | 130 | $4{ }^{1} 434$ | ＋ | 6253 | 102717 | 122930 | 142746 | 16300 | 1828 相 |
| $\begin{aligned} & 203524 \\ & 203520 \end{aligned}$ |  | 0 <br> 0 <br> 17 <br> 18 | 23013 | $\begin{aligned} & 42830 \\ & 4122 \end{aligned}$ | 63043 | 8290 <br> 8357 | 10， 314 | 123326 | 143143 | 163356 |  |
| 20 |  |  |  |  |  | 8 325 | 10 |  | 14 3 江 30 |  | 1836 |


| m． | Fe3 | $\cdots$ | Apr | Pa | Jジп | A 4 | 45 | 5 eps | Dat | Naw | Der |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18406 | 20.4270 | 223639 | 0385 | こ 37 | 459 | \＆ 375 | 日 395 | 10425 | 12．0022 | in 42 J \％ | 18405 |
| it d4 3 | 210 4 ［ 3 | 22＋ 36 | 04249 | 2416 | F4tic | 6 415 | 日 314 | 1045 | 12.445 | 144632 | 104448 |
| 18 477 | 205012 | $22+432$ | 04648 | 2452 | 447：5 | 64512 | 84745 | 10 1954 | 12．68： 5 | 1145020 | 164545 |
| 485：50 | 20 54． | 2F48 29 | c 3012 | 20 ct | －数12 | 50479 | E 5142 |  | 12517 | 145425 | 105249 |
| ＊ 8552 | 20565 | $2 \overline{4} 5235$ | －54 3 | 25383 | ＋35 | 125125 | 6 5516 | 1057 | 12308 | $1+5521$ | 163538 |
| 16， 594 | 212 | 273023 | 05835 | 2505 | 459 | － 3722 | 6545 | 11146 | 1305 | 1528 | $17 \quad 035$ |
| 19345 | 21559 | 23019 | 1212 | 30 | 532 | 7818 | 9332 | 11545 | $134 \%$ | 15 ¢ 14 | 17 ＋ 99 |
| 1474 | 21.5 | $23+10$ | $1{ }^{1} 28$ | $3{ }^{4}+3$ | 5855 | $\begin{array}{llll}7 & 5 & 15\end{array}$ | 9725 | 11841 | $13 \rightarrow 3$ | 15 11.11 | 17828 |
| 15：13E | 211352 | 2348 | 1；025 | \％ 84 | 51055 | $7 ¢ 11$ | 91155 | 1： 13 绿 | 131154 | is 946 | 171224 |
| 191535 | 211748 | 23326 | 11.12 | $3{ }^{3}$ ¢ 98 | 5195 | 715 | و 3521 | 111734 | 13 15 51 | 15184 | $17167:$ |
|  | 217145 | 23 \％ | 1168 | 31035 | 5196 | 717 | \％ 14818 | 11 2：31 | 131947 | 1522 1 | 172017 |
| 1923 28 | 25 2541 | 23209 | 122.4 | 32037 | 5294 | $7{ }^{7}$ | 92314 | 1：2527 | 131344 | 15 315 | 172 1714 |
| 142725 | $21 \pm 938$ | 212358 | 12011 | 32728 | $526 \leqslant 1$ | 72559 | 927： | 112924 | 13274 | 15.2954 | 172810 |
| 95142！ | 2135 | 232754 | － 30 全 | 32824 | 5303 \％ | 72654 | 9317 | 113121 | 133137 | is 3330 | 17327 |
| \％ 3510 | 2）${ }^{\text {a }}$ | 23 315 | 1344 | 33211 | 514.34 | 73251 | $8{ }^{8} 5$ | 119？ 7 | 13 35 14 | 153717 | 17354 |
| 99359 | 21 418 | 23 3548 | ；3 \％ | \＄3517 | 人 31 | 7 \％A | 9391 |  | 133530 | 15 ＋1 43 | 17400 |
| ${ }^{9} 4311$ | 214524 | 23.844 | 14157 | 34014 | 54224 | $7 \pm 044$ | $6 \times 257$ | $1145 \times 0$ | 13 3137 | 157510 | 874357 |
| 75 177 | 2148 | 27．${ }_{2}$ | 1 4 5 5 5 | $\frac{1}{4}$ ¢ 10 | 5 誯2．4 | 7440 | 98654 | 1145 | $134^{7} 23$ | 154537 | 17 ¢f 53 |
| $195 \%$ | 2F5318 | 27.1732 | 4540 | 3 48 | 53020 | 72537 | 95050 | 1： 53 | $135: 20$ | 15 5 5133 | 775190 |
| 10550 |  |  | 154 158 15 4 | 3 5. | 5 54 <br> 5 38 | 7 | $\begin{aligned} & 95+47 \\ & 9539+3 \end{aligned}$ | 14 12 12 | 13 <br> 13 <br> 13 <br> 1813 | 15 \％ 15 | 17 55 46 |
| $2025 ;$ | 2.757 | 註洳 27 | \％ 140 | 35957 | 5280 | 8027 | $10 \% 96$ | 12 4 53 | 14 $3: 0$ |  | 18 \％ 34 |
| 20.650 | $\begin{array}{lll}2 & 5 & 3\end{array}$ | 0323 | 7537 | 4352 | $\square_{6}{ }^{1} 10$ | ¢ 421 | 10 \＆ 30 | 17 E 50 | $1+7$ | $10^{29} 10$ | 1 的 75 |
| 20.0047 | 221\％ | 0723 | 293 | －750 | 6103 | 8 E 20 | 10973 | 121248 | 14.113 | \％ 4.915 | $18: 1133$ |
| ＜ 20104 | 221657 | ¢ 117 | 21330 | 41146 | 6140 | E 12 it | 101429 | I2 104 | $11 \pm+59$ | 10 1712 | 18.515 |
| $20: 840$ | 22 2053 | 01517 | 21720 | $515 \pm 3$ | 61756 | E1513 | 101826 | 122037 | 141856 | $10^{101}$ | 169925 |
| 202230 | 222450 | 01510 | 2 7： 23 | 41935 | $\leqslant 295$ | 6205 | 102223 | 1234 | 14225 | 1675 | 182372 |
| 202633 | 2728 | $0 \cdot 54$ | $225: 9$ | －25 36 | 6249 | 日20 6 | 1020.5 | 122834 | 74 36 | 16292 | 182719 |
| 203039 | 223743 | 027 | 27916 | 42735 | \％ 2946 | 日 253 | 103016 | 125229 | 4.414 | 163257 | 1831 15 |
| 203420 |  | 03059 | 23312 | 421129 | 633.2 | 日 3159 | 101492 | 123225 | 14.842 | 163655 | 183512 1839 |


| dar． | Fet | Nat | Aptal | May | dun＊ | Jekly | Atw | Sopt． | ©er | Now． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18435 | 20 $45 ; 8$ | 223542 | （1）3755 | 23612 | 43825 | 83642 | 83855 | 1041 E | 133925 | 14 4才 38 | 163554 |
| 16472 | 204513 | 223936 | $0+152$ | 2406 | 14281 | －4033 | 54251 | $10 \leq 5$ | 124321 | $14+534$ | 164351 |
| 185058 | 203311 | 224335 | 04546 | 24.45 | 43618 | 6 \＄435 | 64648 | 1049 | 12 4）18 | 14 49 ¢1 | 164748 |
| TE 5435 | 20378 | 22.631 | 04915 | 248 | ＋5094 | 6483 | 85044 | 155259 | ［25：44 | 145327 | 16 51 44 |
| 185951 | $24 \quad 15$ | 225126 | ［ 5331 | 25158 | 45411 | 65228 | E54 ${ }^{1}$ | 105854 | 125511 | 145724 | te 5541 |
| 17288 | 2151 | 215525 | 05738 | 25554 | 458 日 | 65624 | －5619 | \＃1 051 | 12597 | 15120 | 165538 |
| 17.44 | 27858 | 225921 | －134 | 25951 | 524 | 7621 | 5234 | if 447 | 133 | $15 \quad 517$ | 173 3 ${ }^{17}$ |
| 19.004 | 211254 | 23 318 | －5 31 | $3{ }_{3} 37$ | $\begin{array}{llll}5 & \text { i } & 1\end{array}$ | 7417 | $9 \times 31$ | 11844 | 1370 | 15 早新 | 17730 |
| 12143日 | 291651 | 23714 | － 927 | 374 | 5957 | ${ }_{7} 814$ | $\bigcirc 1227$ | 111240 | 131057 | 151310 | 171127 |
| 154534 | 21：2047 | 23 1111 | 1 1324 | 31140 | $5: 34$ | 7124 | 91424 | It 1537 | 138454 | 15177 | 171523 |
| 192234 | 2 z 24.4 | 23157 | 11721 | 31517 | $5 i 750$ | 7167 | 91820 | 112034 | 131850 | 1521 | 171920 |
| 192628 | 2126 |  | 12117 | 31533 | 52147 | 720 | 92217 | 112430 | 132247 | 15250 | 172317 |
| 19324 | 213237 | 23 330 | 125 \％${ }^{1}$ | 32330 | 52544 | 7240 | 92513 | 117827 | 132644 | 15 2856 | 172713 |
| 103＋20 | 21.3634 | 232657 | 12910 | 32727 | 52940 | 72757 | $\bigcirc 30: 0$ | 113234 | 133040 | 153253 | 173410 |
| 1634 | 214630 | 233054 | ［ 337 | 33：23 | 53317 | 73153 | 9347 | 113020 | i 33436 | 153650 | 17356 |
| 154213 | 214427 | 25.450 | － 37 | 33520 | 53733 | 73550 | 9383 | 114016 | 13 3eas | 154046 | 17393 |
| 19 46 10 | 214824 | 233847 | 1410 | 3 2916 | 54130 | 73947 | 9420 | 11＋4：3 | 134229 | 15 $24+3$ | 174259 |
| $1 \overline{4} 507$ | 215220 | 234243 | － 44 部 | 34312 | 54526 | 74343 | 5455 | 1148 | 134626 | 15 48 ¢0 | 174656 |
| 19543 | 215516 | 234640 | 14853 | 34710 | 54923 | 74740 | 94953 | \＄152 | 135023 | 159256 | 175052 |
| 1958 | 22013 | 235036 | － 5248 | 3586 | 55319 | 75136 | 95349 | 115 | 135419 | 455632 | 175449 |
| 20156 | 2248 | 235433 | 1 5646 | 3553 | 55716 | 75533 | 55740 | 115057 | 135816 | 16029 | 175846 |
| 20.553 | 2286 | 235829 | 2043 | 35859 | 6 ：13 | 75929 | 10142 | 12.356 | 14212 | 18425 | 10 242 |
| 20.940 | 22：23 | 0226 | 2459 | 4250 | 659 | 8326 | 10539 | $12 \quad 752$ | 1469 | 16822 | 118 <br> 18 |
| 251346 | 221559 | 0623 | 2836 | 4652 | 696 | 8722 | 10876 | 121：49 | 14103 | 1612\％ | 181035 |
| 201742 | $22: 95$ | 01019 | 21232 | ＋1049 | 6152 | 81119 | 101332 | 51545 | 14142 | 151615 | 101132 |
| 202139 | 22.353 | 01416 | 21629 | 41445 | 61659 | \＆ 1515 | 101729 | 121942 | 147475 | $1620: 2$ | 181828 |
| 202536 | $22 \quad 2749$ | －18：2 | 22025 | 41842 | 62055 | 81918 | 102125 | i2 2338 | \＄ 42155 | 1824 E | 182225 |
| 202732 | 223145 | 0229 | 22422 | 42239 | 62452 | Q23 9 | 102522 | 122735 | ：425 52 | 16285 | 182531 |
| 203329 |  | 0265 | 22818 | 42635 | 62848 | 6275 | 102918 | 123131 | 142948 | 16351 | 183018 |
| 203725 |  | 0302 | 23215 | 43022 | 61245 | E 312 | 1033 15 | 123528 | 143345 | 16 359 | 123415 |
| 204122 |  | 03558 |  | 43428 |  | － 3458 | 103711 |  | 143742 |  | 163811 |


| Jent． | Fion | Pliar． | 490.15 | May | Jume | July | Atic | 5セアで。 | Dr\％． | Nor． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1842 |  | 223435 | 03658 | 23514 | 43726 | 63544 | E 375 | 104018 | 123827 | 7－ 4040 | 163857 |
| 18 40 4 | 20）4＊ 16 | 223 B 41 | C 205 | 23511 | 44124 | 63941 | 64154 | 10447 | 124224 | 144437 | 164254 |
| ， 850 | 205214 | 224238 | 0.4451 | 2437 | 145 － 1 | 64337 | 84559 | 10484 | $12+620$ | 144834 | 164650 |
| 1日 5357 | $20501:$ | 224634 | 0484 | 2474 | 44 4 17 | 64734 | 84047 | 1052 | ：250：7 | 145230 | 1E5047 |
| 195754 | $\begin{array}{ll}11 & \square\end{array}$ | 225011 | 05244 | 2570 | 45314 | 65170 | \＆ 5344 | 105557 | 125414 | 945627 | 165443 |
| 15 i 51 | 2144 | 225427 | 03540 | 25457 | $457 \$ 0$ | 65527 | 85740 | 105953 | －25810 | 15 023 | 165840 |
| 19 5 17 | 21 E | 275824 | 1037 | 25054 | $\begin{array}{lll}5 & 1 & 7\end{array}$ | 65324 | 915 | 11351 | 1327 | 15420 | 17237 |
| 9\％ 944 | $211 \% 57$ | 23220 | 1434 | 3250 | 5153 | 7320 | 9533 | i1 747 | 13 ¢ 3 | 15016 | $17 \quad 633$ |
| 181340 | 211553 | $23+17$ | 130 | 3647 | 590 | 7717 | E 930 | 111143 | 13100 | 151283 | 171030 |
| 191737 | 211950 | $2310: 3$ | 1327 | 3114 | 51257 | 711：3 | －1327 | ¢\＄15 10 | 131356 | 15165 | 171426 |
| 19 E1 3x | $21 \quad 23 \cdot 17$ | 231410 | 19623 | 31440 | 51657 | 71510 | 91723 | 111936 | 131753 | 15206 | 171823 |
| 132530 | 23 2743 | 2318 7 | 12020 | 31636 | 52050 | 719 E | $\bigcirc 2120$ | 112333 | 13.2149 | 15243 | 172219 |
| 1925 2t | 21 $374{ }^{15}$ | 2322 | 12414 | 3273 | 52446 | 7233 | 32516 | 112727 | 7325 | 152759 | $1726: 16$ |
| 15 33 \％ | 21 弱 36 | 23265 | 12813 | 2．27 | 52845 | 7276 | 32913 | 11 3： 26 | 1329 42 | 153156 | 173012 |
| 1937 2t | 213933 | 232954 | 1329 | 33026 | $5 \quad 5239$ | 73056 | 959 | 7135 22 | 13 3359 | 1\％ 5552 | 17349 |
| 191115 | 214329 | 23335 | 1366 | 33423 | 53636 | 73453 | 5376 | 113019 | 1337 す6 | 153949 | 1738 6 |
| 19．4513 | 214726 | 233747 | 1103 | 3 淢 39 | 54032 | 73645 | － $41{ }^{2}$ | $11 \times 316$ | 15 11 32 | 154345 | 1742 L |
| 19479 | 215\％ 22 | 2？ 11 4y | 14359 | $3+216$ | 54429 | $7 \div 246$ | $94 \pm 39$ | 114712 | 134529 | 154742 | 174559 |
| 1\％估 | 215519 | 73 $\leq 512$ | 14756 | 34612 | 5 4820 | 74612 | 54856 | 1151 | 134925 | 155136 | 174955 |
| 15 57 ${ }^{5}$ | 215918 | 534959 | 15752 | 350 | 55222 | 75039 | 95252 | 1155 | 135322 | 155535 | 175352 |
| 2059 | 22312 | 235336 | 15549 | 354 | 55019 | 754.35 | 95649 | 11552 | 13 ¢\％ 1 ¢ | 185932 | 175749 |
| 20 －55 | स2 79 | 235732 | 15945 | 3582 | 6015 | 7 5 5 32 | 10045 | 12258 | 14115 | 16328 | 1日 佼 |
| 20 日 Ez | 22：15 | 0129 | 1342 | 4159 | 6412 | 8229 | 10442 | 12.555 | 14512 | ¢6 725 | 9日 542 |
| 201248 | 2215 | 0525 | 9736 | 4555 | 688 | －625 | 10 2 3 | 121051 | 1498 | 161121 | 18 \％ 38 |
| 201645 | 22 1659 | 0.972 | 41185 | 458 | 6.25 | 6：022 | $10 \quad 1235$ | 121448 | 14135 | 16 15 繒 | 1日 1335 |
| 202042 | 223235 | 01318 | 11532 | 41348 | 6161 | 614 12 | 10 15 31 | 121845 | 14171 | 161414 | 1817 ？ |
| $\pm$ 24 30 | 2726 | 01715 | $\bigcirc 1728$ | 41745 | 61958 | 11815 | 142028 | 122241 | 142058 | 162311 | 182128 |
| 202835 | 233048 | 02111 | 12325 | $4{ }^{47} 41$ | 62355 | 6， 2211 | 102425 | 122638 | 142454 | 16270 | 182524 |
| 203331 |  | 025 0 28 | 427 1 194 | 12935 4974 | 62754 | 日 $\begin{aligned} & \text { ¢ } \\ & 80\end{aligned}$ | 1028 21 | $12 \mathrm{T0} 35$ | 142851 | 16.37 | 時 29 it |
| 20 20 20 02024 |  | 0 <br> 0 <br> 0 | 131 10 | $4 \begin{aligned} & 49 \\ & 433 \\ & 31\end{aligned}$ | 63146 | 630 834 | 1632 <br> 1636 <br> 634 | 123431 | 14 14 14 364484 | 16351 | $\begin{array}{llll} 18 & 33 & 17 \\ 18 & 37 & 14 \end{array}$ |


| Jan | Fes | Mar | And | Pay | Junc | Hy | Aus | Ept． | Oet． | No\％． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184110 | $2043: 4$ | 223147 | 0360 | 23417 | － 3610 | 63447 | 837 0 | 103914 | 123730 | $\mathrm{f}_{4} 4$ | 1638 |
| $1 \mathrm{B45} 7$ | 204720 | 223714 | 035 | 2 牫 14 | 44027 | 63644 | C 4057 | 104310 | $12<127$ | it 4 4 40 | 164357 |
| 1849 | 205917 | 224140 | 04354 | 24210 | 44423 | 64240 | 84453 | 1047 | 1245.4 | 14475 | 估 4553 |
| 1053 5 | 205513 | $22 \times 537$ | B 4750 | 2467 | 44824 | 54337 | 84850 | 10513 | $12 \div 520$ | 145133 | 164930 |
| 185657 | 205900 | 224931 | 05177 | 2503 | 45217 | 65033 | 85747 | 10550 | 125316 | 145530 | 165546 |
| 19053 | 2137 | 225130 | 05543 | 2540 | 45613 | －54 30 | E 5643 | 10585 | 125713 | 145926 | 165743 |
| 19 －50 | 2173 | 225727 | 05980 | 2575 | 5010 | 65820 | 9840 | it 253 | 13110 | 15323 | 17 1 3 3 |
| 198 | 21110 | $23 \quad 123$ | 13 36 | 3 153 | 546 | 7223 | 9.36 | 11 e 49 | 135 | 15 \％ 19 | 17535 |
| 191243 | 211436 | $23 \quad 520$ | 1733 | 3550 | 588 | 7620 | 5 E 3 | i 11046 | 1393 | 151116 | 17933 |
| 191690 | 21 1臱53 | 23 ¢96 | 11127 | 3546 | 51137 | 71015 | F 1230 | $111 \neq 43$ | 131259 | T5 1512 | 171329 |
| 192036 | 212249 | 231313 | 11526 | 3：3 43 | 51556 | 71413 | \％15 26 | 111839 | 131656 | 1519 | 171736 |
| 192435 | 2126 | 2317 \％ | 11923 | \＃1730 | 51782 | 718 | 92022 | 112736 | 132052 | 1523 | 172122 |
| 192829 | 213042 | 23 216 | 12319 | 32136 | 52349 | 7226 | 52419 | 112632 | $13{ }^{2+4} 4$ | 1527 | 1725 |
| 193226 | 213439 | 2325 | 12716 | 32532 | 52745 | 7262 | 92816 | 113029 | 132345 | 153559 | 172915 |
| 193522 | 213036 | ¢3 285 | 13112 | 32929 | 53142 | 72959 | 532 | 113425 | 1332.12 | 153455 | 173312 |
| 194019 | 214237 | 233256 | 1359 | 33325 | 53539 | $73 \pm 55$ | §300 | 17 すt 22 | 153我35 | 153852 | 47378 |
| 194815 | 211629 | 23365 | 139 | 3 379 | 53935 | 7375？ | $9: 0$ | 114218 | 13.035 | 154248 | 1741 |
| 194812 | 215025 | 234049 | 1432 | 34119 | 54332 | 74149 | $9+43$ | 114615 | 1343 | I5 4645 | 7745 |
| 19529 | 2154 | 23 44 45 | 1 A659 | 34515 | 34720 | 74545 | － 075 | 1t 50 ： 9 | 134828 | I5 5041 | 974858 |
| 4958 | It 5818 | 234842 | 15055 | 34912 | 55125 | 74542 | －5． 55 | 115.4 | 12525 | 15543 B | 175255 |
| 2002 | 22215 | 2352 988 | 15.152 | 3538 | $55_{5}^{5} 52$ | 75318 | 55551 | 11585 | 135621 | 155534 | 175659 |
| 20 \％ 58 | 22611 | 235635 | $158+8$ | 3575 | 55014 | 75735 | 95948 | 1221 | 14018 | 16231 | 18 048 |
| 20755 | 2210 日 | $0 \quad 031$ | 2245 | 41 | E 315 | 早 $13 \%$ | 70345 | 12 s 5 | 14414 | 16.528 | 19 444 |
| 201151 | 22：4 5 | $0 ¢ 25$ | 2641 | 4458 | $\pm 711$ | －5． 2 E | $10 \quad 741$ | 12 ¢f ${ }^{\text {f }}$ | $14 \% 811$ | 161924 | 178 |
| 201546 | 2218 \％ | 0825 | 27038 | 4854 | 6：19 | 8924 | 101138 | 12 t 354 | 14127 | 161421 | 18：127 |
| 201944 | 223150 | 01221 | 21434 | 41251 | －15 4 | 旦1321 | 109534 | 121747 | 141 E | 161617 | 18 \％${ }^{18} 4$ |
| 202341 | 273594 | 016 | 21831 | 41648 | 6191 | 81？ 18 | 10 \％ | 12214 | 1120 ！ | 162214 | 1820 |
| 202739 | 22.2951 | 02014 | 22237 | 42184 | 62257 | 821：4 | 102327 | 1225－11 | $1423{ }^{517}$ | 162610 | 182＋27 |
| 20 313 |  | 02419 | 22624 | 424 | 62654 | 82511 | 102724 | 122937 | 142754 | 1630 | 182924 |
| 203531 |  | 029 | 23023 | － 287 | $6305:$ | 8257 | 103120 | 1233 き． | ＋ 43151 | it 34 | 183220 |
| 203927 |  | 022 d |  | ＋3234 |  | 833 | 103517 |  | 143547 |  | 183617 |

1948

| ก． | fres | Mar | April | May | Ifree | luly | Aus． | Seft． | Oit | Nov | Dec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 182013 | 204227 | 213647 | 0390 | 23717 | 43930 | 6 3747 | 8400 | 104213 | 124030 | 144243 | 16490 |
| 184410 | 204623 | 224043 | 04250 | 24113 | $4 \leq 315$ | 2 619 | 94355 | 704810 | 124426 | 144639 | $16.4 \times 58$ |
| $1 \mathrm{~B}^{1818} 7$ | 205020 | 224440 | 04653 | 34510 | $\pm 4723$ | 64540 | 84753 | 1050 | $12+523$ | 145036 | 164653 |
| 18523 | 20543 | 22 2836 | 05050 | 2496 | 45915 | 64976 | 85150 | $105 \% 3$ | 125219 | 145433 | 16 5249 |
| 18560 | 205813 | 225233 | 05445 | 2533 | $4 \leq 516$ | － 5333 | － 35 捛 | 10575 | 125616 | 145829 | 165646 |
| 185936 | 2129 | 225630 | 058.3 | 25059 | 4\＄$\$ 13$ | 65\％ 29 | $859+3$ | 11 154 | $13 \quad 012$ | 15226 | 17042 |
| 19353 | 27 \％ 6 | 21020 | 1239 | \％ 056 | 535 | 7126 | \％ 338 | 1155 | 1349 | 15622 | 17439 |
| 19748 | it 103 | 33 － 23 | － 636 | 3.152 | 5 \％ | 7522 | 7336 | 110 | 1386 | 15 $10 \div 9$ | 17830 |
| 9611\％ | 21， 1359 | 23 \＆ 19 | 11032 | 3 B 49 | 511 ？ | 7819 | 91132 |  | 13122 | 151415 | 171232 |
| 191542 | 211755 | 231214 | 1 1429 | 3 12 － 6 | 5 $1+59$ | 713 1\％ | 91529 | 111742 | 13155 | 159511 | 17 1024 |
| 101939 | 212153 | 231612 | 11825 | 31812 | 51855 | 71712 | $\bigcirc 1926$ | 112139 | 131955 | 1522 e | 172025 |
| 192336 | 292549 | 2320 | 12222 | 32039 | 52252 | 7219 | 52322 | 112535 | 132352 | 15265 | 172422 |
| 192732 | 212940 | 23245 | 12 S 10 | 32.435 | 52542 | 7255 | 9278 | $1125 \pm 2$ | 13274 | 15302 | 172816 |
| 193129 | 213342 | 23282 | － 3015 | 32832 | 53045 | 720 | 33115 | 113328 | 133145 | 153358 | 173215 |
| 193525 | 213718 | 233159 | 13412 | 3328 | 534.42 | 73259 | 93512 | 113725 | 133541 | 153755 | 173611 |
| 193922 | 214135 | 233555 | 138 日 | $\pm 3525$ | 53638 | 73655 | 9338 | 11412 | 135938 | 154931 | 17408 |
| 194318 | 21.1532 | 233952 | 1425 | 34021 | 54235 | 74052 | 9435 | 114518 | $13+335$ | 15 4 48 | 17445 |
| 194715 | 21.1938 | 234348 | 146 | 34416 | 5 达 32 | 74449 | 9471 | 1184 | 134731 | 154548 | 17 48 |
| 195111 | 215325 | $2347<5$ | 14958 | 34815 | 55028 | 7＋5．5 | 55058 | 11 ち？ 11 | 135128 | iS 5 5 519 | 175158 |
| 19558 | 215721 | 23514 | 15354 | 35111 | 55424 | 75211 | 9545 | 11578 | ＋ 35520 | í 5737 | 175554 |
| 19505 | 23 in ${ }^{2}$ | 235538 | 15751 | 356 日 | $5582 ;$ | 35. | प 5851 | 121 | 195921 | 16454 | 175951 |
| 2031 | 22514 | 235934 | ¥ 148 | 40 | 6211 | 5 1934 | $10{ }^{2} 46$ | 1251 | 14317 | $16 \quad 5 \quad 31$ | 16834 |
| 20658 | 22 \＄ 11 | $0 \geq 31$ | $25 \pm 4$ | $7+1$ | $6 \quad 614$ | $8+3:$ | 10644 | 12857 | 14714 | \％ 627 | 188 |
| 208054 | 22137 | 078 | $29 \div 1$ | 475 | 6：017 |  | 76 104 | $12: 1554$ | 141110 | In 1324 | 181140 |
| 201451 | 22174 | 01124 | 21317 | 411 紬 | －147 | 81224 | 101437 | 121650 | if15 7 | $16+710$ | 181537 |
| 201847 | $2 \frac{21}{1}$ | 0 15 21 | 2173 | － 1550 | \％ 18 ！ | $8: 621$ | 101 ¢ 34 | 122047 | $14: 9$ a | $1621: 7$ | 181934 |
| 202244 | 222457 | 01917 | 22130 | 4198 | －220 | 83017 | $1022 \pm 0$ | 122443 | 17230 | 10 $25: 3$ | t6 23 |
| 202640 | 222854 | 02314 | 22517 | 42341 | 6255 | 82.44 | 102627 | 127640 | 142657 | 162410 | 152727 |
| 203037 | 323750 | 02710 | $\pm 2923$ | 42780 | 67553 | 82810 | 10323 | 12 323 | 123053 | 1e3s 6 | if if 23 |
| 20 5－4 3 |  | 0317 | 23220 | 4315 | 63350 | ¢ 32 | 103420 | 123633 | 143450 | 14 3 | ：935 20 |
| 203810 |  | 0353 |  | 43533 |  | 6 36 | 103817 |  | 143846 |  | 193916 |

1949

|  | dan | Feb． | Mat． | Aprs 1 | May | June | uly | Aus． | eps | Oct | Nov． | Dec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 16.1313 | 20 | 2235 | 038 | 236 | $\square 3$ \％ | 636 | － | 104116 | 123933 | 46 | 1640 |
|  | 15.17 | 2049 | 22 汮枹 | 0419 |  | － 4229 | $6404{ }^{\text {ce }}$ | 84259 | $12+513$ | 123329 | 14 45 52 | 15 5159 |
|  | 18518 | 205319 | $22.3{ }^{2} 3$ | 03556 | 2 2413 | 44616 | 64443 | $8 \div 65$ | $10+9$ | 124726 | 14 44835 | 164756 |
|  | 1855 | 205716 | 22 27 39 | 0.1033 | 2＋89 | 45023 | 548 | 85.85 | 1053 | $12 \leq 122$ | 145136 | 16 5152 |
|  | 198659 | 21112 | 22 72 51 51 36 | 05345 | 2526 | 4548 | 55236 | E 54， 49 | 10572 | 125519 | 145732 | ${ }^{16} 5599$ |
|  | 19 \％ 56 | i1 59 | 225533 | － 5786 | 2582 | 45985 | ${ }^{5} 5632$ | E 58 4 | 11059 | 125515 |  | 1659 45 |
|  | 19.55 | 219 | 225829 | 19 4픈 | 25959 | 5212 | 7629 | 924 | $11+55$ | $13 \quad 317$ | 15 | 17 |
| 8 | 191049 | 2113 | 23 3 26 | 539 | 3355 | 56 | 7425 |  | 11 es | 1378 | 458 | $17{ }^{17}{ }^{\mathbf{7}} 39$ |
|  | 191＊ 45 | 21 14 59 | 23.72 | ${ }^{3} 35$ | 3 752 | 5105 | 7823 | 51035 | 11124 | $13: 115$ | 1513 | 171435 |
|  | 1818.2 | 212055 | 238119 | 11132 | 31：96 | 5142 | 71219 | 91432 | 11.1645 | 13152 | 151715 | 171537 |
|  | 1922 38 | 212452 | 231515 | （1） 1724 | 21545 | 51758 <br> 51755 <br> 185 | 71615 72012 | ${ }^{9} 91828$ | $1120+2$ | 131858 | 152111 | 171928 |
|  | 193032 | 293245 | 2323 － | 12522 | －23 38 | － 255 | 72. | 4 | 11 112485 | 132255 |  | $\bigcirc 72325$ |
|  | 193428 | 213641 | 2327 | ＋ 2316 | 32735 | $5{ }_{5}^{59} 48$ | 728 | 9 | $112{ }^{12} 1$ | 139848 | 1533 | if 3118 |
|  | 193825 | 214038 | 23 | 13315 | 33131 | 53345 | ？ 321 | \％ 3415 | 113628 | 13 3a 44 | 15 3658 | 173514 |
|  | 78．421 19 | 21： 4435 | 23 3458 23 385 | 13719 | 33528 | 53741 | 75558 | 9 is 10 | 114024 | 133841 | 154054 | 1735：1 |
|  | 19．0．18 | 21 4838 | 23 <br> 2385 <br> 23 <br> 42 <br> 1 | 1418 | 33924 | $5+138$ | 73955 | $9+2$ | 114429 | 13.238 | 154451 | 1743 |
|  | 1954ti | 215624 | 2346 | 149 | － $4{ }^{\circ} 1$ | $5{ }_{5} 5$ | 74351 | \％ 96 | 11.4818 | 154634 | 154547 | 17 |
|  | 1938 | 22021 | 2350 | 15257 |  | ¢ 598317 | 7518 | ${ }_{4}^{4} 595$ | 115214 | 113 <br> 13 <br> 13 <br> 50 <br> 17 | 15 <br> 15 <br> 584 <br> 40 | 17 51 <br> 17 54 <br> 8  |
|  | 202 | 23 ${ }^{2} 817$ | 23 5x－ 51 | －5554 | 35511 | $55_{5}^{5} 514$ | 35514 | ${ }_{4} 575$ | 12 S ¢ | 135824 | $\begin{array}{ll}16 \\ 16 & 0 \\ 187\end{array}$ | 175854 |
|  | 20.8 |  |  | $\bigcirc 051$ | 3597 | $\begin{array}{r}5 \\ \hline \\ \hline 121\end{array}$ | ${ }^{7} 5937$ | 1015 | 124 | 14220 | ${ }_{16}^{16}$ | ：8 250 |
|  | $120.5{ }^{5} 5$ | 22 22 129 | $\begin{array}{ll} 0 & 2 \\ 0 & 301 \end{array}$ | 2 4 47 <br> 3 5  <br> 3 4  | 43 | 6517 <br> 80 | 883 | 10 517 | 1288 | $14{ }^{14} 517$ | 16 E 38 | 188547 |
|  | 201750 | 2220 \％ | 01027 | 21290 | ＋1057 | Et3） 10 | ${ }_{8}^{8} 1727$ | 10， 1348 | 12 $11 \begin{aligned} & 17 \\ & 12 \\ & 15 \\ & 59\end{aligned}$ | 141093 14.410 | 1812 18 | ${ }^{18}$ |
|  | $2021+7$ | ${ }^{2} 2240$ | C1424 | 21637 | 41453 | －17 | $8{ }_{8} 15{ }^{\text {P4 }}$ | 101737 | 13 159 | 14187 | TE 2020 | 181837 |
|  | 20 2547 | 222757 | －1220 | 22033 | ＋1850 | 6213 | 8 1910 | 10213 | 122346 | 14 22 | 162416 | －8 2233 |
|  | 2029 20 | 22315 | 02217 | 22430 | $422 \div 7$ | － 250 | 82117 | 1025 30 | $12.27=3$ | 14260 | 162813 | ＊ 2130 |
|  | 20 |  | 030 |  | ${ }_{4}^{4} 3043$ |  | 82713 | 102936 | 12.1 | 143956 | 1632 | 183026 |
|  | 204130 |  | 0346 | － 22.2 | $4{ }_{4}^{4} 34$ | 61253 |  |  | 123536 | 143353 | \＄636 6 |  |


| Jım | Feb． | His | April | P4y | （t | July | Aus | Seps | Oet | N | Der |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 181216 | 204429 | 223453 | － 37 | 23523 | 43736 | 63553 | \＆汨 6 | 104019 | 123836 | 144049 | 1639 3 |
| is AE P？ | 204815 | ${ }_{22}^{2} 354$ | 0413 | 23919 | 4 4！32 | \％ 585 | 842 2 | 104416 | 124232 | 14 4.548 | 16 ＋3 2 |
| 18509 | 205222 | 228246 | 0 O4 59 | 24316 | 44529 | 64314 | 8455 | $10+812$ | 124629 | $1+4842$ | 16 le 59 |
| 1854 | 205619 | $22+642$ | 04856 | 54712 | 44926 | 6.5742 | 8． 4956 | 10529 | 125025 | 145239 | 10 $50 \leq 5$ |
| 185 51 | 29015 | $2250{ }^{2}$ | 05257 | 2519 | 45327 | 65139 | 85352 | 10 56， 5 | 125422 | 145.35 | 165452 |
| $19 \quad 159$ | $21 \quad 412$ | 225436 | 05549 | 2555 | 45715 | 45535 | 85749 | 1102 | 125815 | 15032 | 163848 |
| 1955 | 2188 | 275837 | 1045 | 254 | $5: 15$ | ¢ 5932 | 4145 | 11 158 | 13 ： 15 | 15 － 25 | 17245 |
| 19.952 | 21125 | 23 － 29 | $1+42$ | $3 \pm 50$ | 5512 | 7329 | 954 | 11755 | $1361 \%$ | $15 \quad E \quad 25$ | 17642 |
| 191348 | 21162 | 23 ¢ 25 | 1838 | 3655 | 588 | 7723 | 9.8 | 11115 | 1310 日 | 151224 | 171038 |
| 191745 | 271888 | $2310: 2$ | 1 1235 | 31052 | 5135 | $7: 122$ | － 1335 | 111548 | 13145 | is 1618 | 171435 |
| 192142 | 21735 | 2314 ：8 | 1 1832 | 31448 | 5171 | 71518 | 91731 | 111945 | 1318 1 | 15：014 | 171811 |
| 142538 | 215751 | 231215 | 12028 | 3144 | 52058 | 71915 | － 272 2 | 112341 | 1） is $^{\text {ca }}$ | 152411 | 872238 |
| 192735 | 27 3才 48 | 23211 | 12425 | 32241 | 52455 | 72311 | ¢ 2525 | 112738 | 122554 | 15 EE | 17.28 |
| $19333:$ | 21354.8 | 2326 8 | 12821 | 32638 | 52851 | 7278 | 9293 | 193134 | 132559 | 1512 | 173021 |
| 193725 | 27.1941 | 23305 | $132: 8$ | 3 30314 | 53246 | 731 | 9318 | 11 is 31 | 1333 ＊ | 15301 | 173118 |
| 194124 | 214338 | 23349 | 13614 | 23131 | 53644 | 735 | 03714 | $11 \pm 927$ | 13 3： 44 | 153557 | 173814 |
| 174519 | 214714 | 233758 | 14011 | 13827 | 51041 | 73858 | 93111 | $1: 4324$ | $13+1$ \＄1 | 15.6354 | 174211 |
| 194517 | 215931 | 23 4154 | $1{ }^{14} 4$ | $3{ }^{3} 42.4$ | 54437 | 74254 | －45 7 | 114724 | 13 4537 | 154750 | 17467 |
| 195314 | 2155 | 254551 | 14.4 | 3 ¢62： | 54834 | 74551 | \％ 49 | 1159 | 154934 | 15517 | 17504 |
| 19 57 20 10 | $\begin{array}{r}215924 \\ 22 \\ 29 \\ \hline 20\end{array}$ | 23 <br> 23 <br> 23 <br> 23 <br> 14 | 157 155 1 155 | 35017 | 55230 | 75047 | 5530 | 115594 | 135330 | i5 55 44 | 1754 |
| 205 \％ | 22 \％${ }^{2}$ | － 235740 | 15557 | 3 34.4 | 55027 | 7544 | 95057 | 115910 | 13577 | 155940 | 113757 |
| 2090 | 221813 | 135140 0 | 15454 2 2 | － 287 | $\begin{array}{ll}6 & 024 \\ 6 & 420\end{array}$ | 7 <br> 8 <br> 8 <br> 8 | 10 1054 | $\begin{array}{llll}12 & 3 & 7 \\ 12 & 7 & 3\end{array}$ | $\begin{array}{ll}14 & 1 \\ 1+3 \\ 14 & 5 \\ \\ \end{array}$ | 16 10 10 | $\begin{array}{lll}18 & 153 \\ 18 & 5 & 50\end{array}$ |
| 201257 | 221510 | $0 \quad 534$ | 2747 | －\＆ 3 | 4 －${ }^{517}$ | 8 8 6 | 1084 | 12110 | $\begin{array}{ll}14 & 5 \\ 14 & 9\end{array}$ | $1511 \pm 0$ | 18047 |
| 20.653 | 2297 | 0 | 71143 | 4100 | 61213 | 61070 | 19123 | 131456 | ：4 1313 | 1e： 526 | 181343 |
| 202050 | 22.33 | $0: 327$ | 21540 | 41357 | 61610 | 81427 | 1018 | 121859 | $1+1710$ | $10: 923$ | 181740 |
| 202446 | 22270 | 017.3 | 21936 | 41753 | 6206 | E 28 23 | 522036 | $12 \pm 250$ | 142： 6 | 162315 | 182136 |
| 202843 | 273056 | 02120 | 22333 | $+2150$ | 6243 | E 2220 | 40 24 31 | 122646 | 14253 | 162716 | 182535 |
| $2032=0$ |  | 02510 | $\pm 2729$ | 42546 | 6280 | E25 20 | 102.129 | 123043 | 142859 | 1631 13 | 1日 2720 |
| $20 \pm 306$ |  | 02913 | 23126 | 47943 | 63156 | $830: 3$ | 103276 | 12 部39 | 19＋3256 | 1635 | 18 317 |
| 204033 |  | 039 |  | ＋33 39 |  | 6345 | 202623 |  | 143652 |  | 183722 |


| 1：n． | 0 | Mar． | Ap | May |  |  | U 4 | Sedt |  | 140\％ | Oec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18－199 | 2043 | 223 | 036 | 23426 | 43619 | 634 | 637 | 102522 | 123：39 | 143952 | 18.38 |
| 184516 | $20: 7$ | 22375 | $0 \pm 68$ | 23822 | $1+35$ | ¢ 385 | Ef 5 | 104319 | 124125 | 1443 4 | 1542 |
| $18+1912$ | 205125 | 224149 | 0442 | 24219 | 44432 | 64249 | 8452 | 104715 | 124532 | 1417 $\mathbf{4}_{5}$ | 1648 |
| 1853 | 205522 | 2245 㑨 | 0459 | 24615 | 44829 | 64545 | 848 59 | 105112 | 124928 | 145142 | 1649 ¢ 0 |
| 16575 | 205919 | $2249+2$ | 0595 | 25012 | 45225 | 65042 | ES25s | 1055 | 125335 | 145538 | 165355 |
| 159 | $21 \quad 315$ | 225339 | 05552 | 2548 | 45627 | 454 58 | 日 565 | 1059 | $12 \leq 722$ | 145935 | 165752 |
| 15456 | 21712 | $2257 \pm$ | $05 \% 49$ | 258 | 5018 | 65835 | 9048 | 1131 | 13118 | 15 3131 | 17148 |
| 19 E55 | 2111 | $2 \pm$＋32 | － 345 | T | 5415 | 7232 | $9+45$ | ：11 658 | $13 \leq: 5$ | 15728 | 17515 |
| 19125： | 21155 | 23528 | 1741 | 558 | 5811 | 7628 | 984 | 11 ：0 55 | 13.11 | 15 1124 | 17949 |
| 191648 | 21191 | 23925 | 1 113E | $3 \quad 955$ | 5128 | 71025 | ¢ 1238 | 1： 14 5！ | 12 13 ¢ | 15 is 21 | 17 13 38 |
| $1420<5$ | 21258 | 2才132i | 115 | 5135\％ | $5: 8$ | 714 | ＊ 835 | i1 1848 | $1 \pm 17$ | 151718 | 171734 |
| 1924.4 | 212654 | 231718 | 11931 | 317 ＜E | 5201 | 71818 | c 231 | 112244 | 1321 | 152316 | 1721 29 |
| 192638 | 2： 3051 | 25 27 ： 4 | 128 | 321 －4 | 52358 | 72214 | 52428 | 1126 | 132457 | 152711 | 17 2527 |
| 10 江 14 | 213448 | 232511 | ： 2724 | 32541 | S 2754 | 72611 | c 2 ¢ 24 | 113037 | 132854 | 15387 | 172924 |
| 193631 | 213844 | 2329 E | － 3121 | 32937 | $5 \pm 95$ | 730 | 93221 | \＃1 3412 | 133251 | 1535 | 173321 |
| 194027 | 214241 | 2331 | 13517 | 33334 | 53547 | 7 9 4 | 93617 | 113831 | 133647 | 15390 | 173717 |
| $19 \div 24$ | 219637 | 23371 | 1 3514 | 33731 | 53946 | 7381 | 940 if | 114227 | 1इ 4044 | 154257 | 174114 |
| $19+820$ | 215054 | 234057 | $143: 0$ | 34127 | 5430 | 73157 | 94410 | 114624 | 13.4440 | －5 4559 | 174510 |
| 155217 | 215430 | 2i 4.54 | $147 \%$ | 3 452 2 | 54737 | 74554 | 9 － | \＄15020 | 134837 | 155050 | 17457 |
| 155414 | 215827 | 234850 | － 51 | 31920 | 55134 | 74050 | 952 | 115477 | 135232 | 155447 | $1 \% 53$ |
| 20 －10 | $22 \quad 223$ | 235247 | 1550 | 35317 | 55530 | 75347 | 9560 | ：15813 | 135630 | ¢ 5 58 $\ddagger 3$ | 17570 |
| 204 | $22 \leq 20$ | 23545 | 15857 | 35711 | 55927 | 75743 | $5_{5}^{5} 559$ | $\because 2 \quad 210$ | 14026 | $16 \pm 40$ | 18.556 |
| 208 | 221597 | D040 | 2253 | 4110 | 6.23 | 8140 | $10 \quad \pm 53$ | $12 \epsilon$ | $14+23$ | 16636 | 18453 |
| 20120 | 121413 | $0 \quad 137$ | 2 ¢ 50 | 45 | 6720 | 8537 | 10750 | 12103 | 14820 | 161033 | $18 \quad 550$ |
| 201556 | 121E：0 | 0833 | 21046 | 4. | 61116 | 8 ¢ 31 | 1619 | 121359 | 141216 | 161429 | 181246 |
| 201953 | 2222 | 01230 | 21443 | 4130 | $615: 3$ | 81130 | 101543 | 121755 | 141613 | 861826 | 181643 |
| 20.2350 | 22263 | 01620 | \％1839 | 41656 | 619 | 8：2 20 | 101929 | 122153 | 1420 | $16222 \pm$ | 182039 |
| 202746 | 222959 | 020 | 222 | 42053 | 623 | 82123 | 1023 36 | 122549 | 1424 | 162619 | 18.7 |
| 203143 |  | 0 24 | 22633 | 42445 | 627 | E2519 | 102733 | 122946 | 14282 | 163014 | 183832 |
| 203530 |  | 0 | 2 3029 | 42846 4725 | 63059 | $82818$ | $103829$ | 12334 | $143159$ | 1634 12 | $183229$ |


| Jun， | feb． | H1a． | Apral | May | lune | July | $A_{4}$ | 5 tax | Oct． | Nay | Fex |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 194022 | 204235 | 223657 | 0399 | 23725 | 43539 | ¢ 3755 | ／ 409 | 104222 | 124038 | ：4 4252 | 1641 a |
| 18449 | 20 fe 32 | 224 SI | 0425 | 24122 | 44315 | 64： 52 | 8445 | 10.1618 | 124435 | 144648 | $16 \div 5 \quad 5$ |
| $18 \div 815$ | 205028 | 22446 | 0472 | 24518 | 44732 | $645 \div 8$ | 648 | 103015 | 12．E3： | i4 5045 | 16 ¢ 19 |
| 1e 5212 | 205425 | 224645 | 05058 | 24915 | 45128 | 64945 | \＆5；58 | ：054 11 | 125228 | ： 45441 | 165258 |
| 18568 | 205822 | $2252 \div 2$ | 05455 | 25311 | 45525 | 45341 | 85555 | 10588 | 125625 | i4 5838 | 165535 |
| 1905 | 212918 | 22 5658 | 05859 | 2578 | 45921 | 65736 | 日 5951 | 112 | 13021 | 15234 | $17 \quad 051$ |
| $19+1$ | $21 \in 95$ | 23035 | 1248 | 115 | 5318 | 7135 | 9348 | 11.6 | 13418 | 15631 | 17448 |
| 10758 | $21: 011$ | 23 4 3 | $15+4$ | $\begin{array}{llll}3 & 5 & 1 \\ 3 & 0 & \end{array}$ | 5 5 714 | 7 7 7 | 74 | 11 ¢ 36 | 13814 | 951027 | $17 \quad 814$ |
| 19：1154 | 2：14 日 | $\begin{array}{lll}23 & 8 & 88\end{array}$ | － 1041 | 3858 | 51111 | $7 \quad 978$ | 91141 | 111354 | 191211 | 15 14.24 | 1712 17 |
| 15 is 5： | 21184 | 231224 | \％ 1438 | 31254 | $5: 58$ | 71324 | 9 \％ 538 | $1117 \mathrm{~S}_{1}$ | 13 is 7 | 151621 | 171637 |
| 191948 | 21721 | 231671 | 11834 | 31651 | 519 － | 71721 | 91934 | 1： 2147 | 1320 | $15 \quad 2217$ | 172034 |
| $1923+4$ | 212557 | 232016 | 12231 | 32047 | 55231 | 72917 | 92331 | 112544 | 1324 0 | 152614 | 172430 |
| 192744 | 212054 | 232415 | 12627 | 32444 | 52657 | 72514 | 92727 | 112940 | 122757 | 153010 | 172827 |
| 193：37 | 21 315： | 23 2a 19 | 13074 | 32840 | 53054 | 72\％： | 53124 | 113337 | ¢139 34 | 15347 | 173224 |
| 193534 | 211747 | 23327 | 12420 | 33237 | 53450 | 733 | 83520 | 113734 | 13350 | 15 3183 | 173620 |
| 193930 | 214144 | 2354 | 1317 | $3363=$ | 538.77 | 7374 | 937：7 | 114930 | ［13 39 －17 | 15420 | $1740: 7$ |
| 174327 | 214540 | 2340 | 14213 | 34030 | 54243 | 30 | $943: 3$ | 114527 | 135343 | 154556 | 174413 |
| 194721 | 214937 | 23497 | 1.4610 <br> 150 | 34427 | 5 \％640 | 7 74.57 | 94710 | 114927 | \＄ 3 97 40 | 154853 | 17480 |
| 1） 5120 | 215331 | 234753 | 1507 | 34823 | 51537 5 5 | 74653 | 959 | 115320 | 135136 | 155530 | 17526 |
| 195517 | 215730 | 235150 | $\begin{array}{llll}1 & 54 & 3 \\ 1 & 50 & 0\end{array}$ | 35220 356 | 5 <br> 54 <br> 5 <br> 5 | 75250 | 955 | 115744 | 135535 | 1557 76 | $17{ }^{17} 56$ |
| 145913 | 22120 | 235547 |  |  | 55830 | 75046 | 4590 | \＄2 213 | 135929 | $16 \quad 143$ | 175959 |
| 20310 | $22 \quad 523$ | 235943 | $\pm 1956$ | 4013 | 6226 | 8042 | 10255 | $12 \quad 59$ | 14375 | $16 \quad 539$ | $18 \quad 356$ |
| 2076 | 22920 | $0 \quad 3$ | 7553 | 4 4 49 | $6 \quad 673$ | $3 \div 40$ | 10.653 | 12 9 | 14 723 | 16936 | $18 \quad 753$ |
| 20113 | 221316 | 0736 | 2949 | 486 | 61019 | $8{ }^{8} 8$ | 10：0 49 | 1213 I | \＄4 1119 | 161932 | 181149 |
| 201459 | 221713 | 01133 | 21346 | 412 | 61495 | ¢ 1213 | 101446 | 121658 | 1415 | 161779 | 181546 |
| 201836 | 22215 | 01529 | 21742 | 4155 | 69812 | 61629 | 10184 | 122056 | 141912 | i6 2125 | 181942 |
| 202253 | 22156 | 01926 | 21439 | 41956 | 6229 | E 2920 | 402239 | 122452 | 1423 | 162522 | 98123 39 |
| 202649 | 22.292 | 02322 | 22536 | 42352 | 6266 | 82422 | 902836 | 422845 | 1427 | 162519 | t¢ 2735 |
| 203046 | 223259 | 02719 | 22932 | 42749 | 6302 | 日 2817 | 103032 | 173245 | 14312 | 143315 | 183132 |
| 203442 |  | 03115 | 23929 | 43145 | 63559 | Eji 15 | 103429 | 123642 | 143458 | 16． $37: 2$ | 他 3528 |
| 203639 |  | 03512 |  | 43542 |  | 83512 | 103825 |  | 143855 |  | 113525 |


| 1953 | lam， | Feb | 陮s | April | May | Juns | July | Aug |  | Ott． | PVer． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ！ | 184322 | $20+5$ 55 | 273558 | 03812 | 23628 | 43841 | 63658 | E 3911 | 104125 | 173741 | 144155 | 164011 |
| 5 | 384718 | 204931 | 22355 | 042 g | 24025 | 44238 | 64055 | 8438 | 104521 | 12438 | 144551 | 16448 |
| \％ | 1851 15 | 205328 | 224552 | 0 ¢ 5 | $2+421$ | 4.45 | $\epsilon 4459$ | 6 475 | 104918 | 124734 | 144948 | 16484 |
| 4 | 谒 5518 | 205725 | 224748 | 051 | 24818 | 45031 | 64848 | 8511 | 105344 | 125131 | 145344 | 16521 |
| 5 | 1859 c | 21129 | 225145 | 05358 | 25214 | 45428 | 65244 | 은 54 58 | 135711 | 125528 | 145741 | 165557 |
| ¢ | 1934 | 21518 | 225541 | 0575 | 25611 | 45827 | 65641 | 85054 | 11 ： 7 | 125924 | 15137 | 165954 |
| ？ | 1971 | 21 9 i4 | 225938 | 1151 | 308 | 5271 | $7 \quad 038$ | 9251 | 1154 | $13 \quad 321$ | 15 15 3.34 | 17351 |
| d | 19：057 | 211311 | 231331 | 1547 | 314 | 5617 | 7434 | 9647 | 11 ¢ | 13717 | 15930 | 17747 |
| 5 | 191451 | 21177 | 23733 | 1944 | 3 日 1 | 51014 | 7839 | 91044 | 111257 | 131414 | 151327 | 17114.4 |
| 10 | $19: 851$ | 21214 | 231127 | 11341 | $3: 157$ | 5 1410 | 71227 | 91441 | $1110 \leq 4$ | 131510 | 151723 | 171540 |
| i 1 | 192217 | 27 25 | 23 1524 | 19737 | 31554 | 5187 | $7: 624$ | 91837 | 1：20 56 | 13197 | 152120 | $17: 57$ |
| 12 | 192644 | 292057 | $23: 921$ | 12134 | 31950 | 5224 | 72020 | 92234 | 112447 | 1323 y | 152517 | 172333 |
| 15 | 193040 | 243254 | 232317 | 92530 | 32347 | 5260 | 72417 | 22630 | 112643 | 13270 | 152913 | 172730 |
| 14 | 193437 | 213650 | 23 2711 | 12927 | 32743 | 52957 | 72813 | 93027 | 113240 | 133056 | 153310 | 173126 |
| 15 | 193835 | 2140.67 | 233110 | 13523 | 33140 | 53353 | 73210 | 83423 | 113636 | 133453 | 15376 | 173523 |
| 15 | 194230 | 214443 | 23357 | 13720 | 33537 | 53750 | 7367 | 93820 | 114033 | 133850 | 15413 | 173920 |
| 17 | 194527 | 214840 | 23393 | 14116 | 33933 | 54146 | 7403 | 94216 | 114430 | 134246 | 154459 | 174316 |
| 18 | 195023 | 215236 | 23430 | 14513 | I 4330 | 54543 | 7440 | 984613 | 114826 | 134645 | 154856 | 174713 |
| 15 | 195420 | $2155 \pm 3$ | 234656 | ． 49 i0 | 34725 | $54 \% 40$ | 74756 | 950 | 115233 | 135039 | 155252 | 17598 |
| 20 | 195816 | 22029 | 23505 j | 1536 | 35123 | 55336 | 75153 | 9546 | 115610 | 135436 | 155649 | 17556 |
| 21 | 20213 | 22426 | 235449 | 157 | \％ 5519 | 55733 | 75549 | 9583 | 12016 | 135832 | 16046 | 17592 |
| $2 \overline{1}$ | 2069 | 22823 | 235846 | 2059 | 35916 | $6 \quad 129$ | 75946 | 10159 | 12412 | 14 229 | $16 \quad 442$ | 18259 |
| 23 | 20106 | 221219 | 0243 | 2456 | 4312 | $6 \quad 526$ | 8343 | 10550 | 1288 | 14625 | $16 \quad 839$ | 18655 |
| 24 | 20142 | 221516 | 0639 | 2852 | 479 | $6 \quad 922$ | 8739 | 10952 | 12125 | 141022 | 161235 | 181052 |
| 25 | 201755 | 222012 | 01336 | 212 4 | 4116 | 61319 | 81136 | $1013 \div 9$ | 1210 | 14：4：9 | 161632 | 181449 |
| 27 | 202156 | $22 \quad 249$ | 01432 | 21645 | 485 | 61715 | A15 32 | 101745 | 121959 | 141815 | 162028 | 181845 |
| $2 \%$ | 202552 | 22285 | 01829 | $220 \div 2$ | 4 4859 | 62112 | 81929 | $1021+2$ | 122355 | 142212 | 162425 | 169242 |
| 2 | 202949 | 22322 | 02225 | 22439 | 42255 | 6259 | 82325 | 102530 | 122752 | 14268 | 162822 | 182638 |
| 29 | 203315 |  | 02622 | 22835 | 42652 | 6295 | 82722 | 102935 | 123148 | 14305 | 163298 | 183035 |
| 0 | 203742 |  | 03018 | 23232 | 43048 | 6352 | 83118 | 103332 | 123545 | 14341 | 163615 | 183431 |
| 21 | 204138 |  | 034 is |  | $+3445$ |  | 83515 | 103728 |  | 143758 |  | 183628 |

1954


|  |  |  |  |  |  |  |  |  | co |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18.11 |  |  |  |  |  |  |  | 1039 |  |  |  |
| 1845 | $20-17$ | 2238 \％ | 04014 | 238 | $\pm$ | 6390 | 84114 |  |  |  |  |
| 18 | 205834 | 224157 | 04410 | 24227 | 4440 | 64257 | 84510 | 10：7 23 | 124540 | 144753 |  |
| 185317 | 205530 | 224554 | 048 | 24627 | 48837 | $6+653$ | 8497 | 105120 | 12 4936 | $1+5150$ | 1656 |
| 185714 | 2059 | 224950 | 052 | 25020 | 45233 | 65050 | 853 | 105516 | 125333 | 145546 | 46543 |
| 19110 | 21.323 | 225347 | 056 | 25417 | 4 5630 | 65447 | 8570 | 105913 | 125730 | 145943 | 1657 |
| 185 | 21720 | $2257 \pm 3$ | 05957 | 25813 | 5016 | 65845 | 9050 | 11310 |  | 15 339 |  |
| 19 | 211196 | $231: 0$ | 353 | 210 | 5423 | 7240 | －+53 | 1176 | 13523 | 15736 | 17 |
| 1913 | 2115 | $23 \quad 537$ | 750 | ${ }^{3}+$ | 5820 | 636 | 98 | 1119 | 13919 | 15：132 |  |
| 191656 | 211910 | 23933 | 111 ＋6 | 3103 | 51216 | ？ 1033 | 912 | 114459 | 131315 | 151529 | 17 |
| 192053 | 2123 | 231330 | 1 is 43 | 3：359 | 51613 | 71429 | 91643 | 11856 | 131712 | 1519 | 171 |
| 192448 | $2{ }^{1} 27$ | 231720 | 11939 | ${ }^{3} 1756$ | 5209 | 71826 | 91039 | 11225 ： | 13219 | 15 | 1721 |
| 192845 | 213059 | 232123 | 12336 | 3 2153 | 5246 | 72222 | 92436 | ：112649 | 13255 | 18 |  |
| $1932 \times 3$ | 2： 3456 | 232519 | 12732 | 32549 | 5382 | 72519 | 9 2832 | $1130+$ | 1329 2 | ： 5 | 29 |
| 1936 39 | 2f 3852 | 232916 | － 3129 | 32946 | 5315 | 73016 | ， 3229 | 113442 | 131259 | 157512 | 173229 |
| 194036 | 1： 4249 | 233312 | 13325 | $3339 \leq 2$ | 53535 | 73412 | 936 | 113839 | \＄13655 | 15398 | 1737 |
| 194432 | ${ }^{21} 4.545$ | 2337 | 139.2 | 337 | 53932 | 7389 | 4E22 | $11+235$ | 134052 | 15435 | 1741 |
| 194829 | 2：50 42 | 2341 | 14319 | 34135 | 54348 | 7425 | $9+419$ | 11 4632 | $13+488$ | 1547 ${ }^{15}$ | 1745 |
| 195225 | 215434 | 2345 | 14785 | 34512 | 54745 |  | ${ }_{9} 94815$ | 115028 | 134845 | 155058 | 174 |
| 19 20 20 | 2） 28.35 | 23 238 23 52 58 54 | 15112 1558 155 | 349 <br> 3 | 551 | 4958 | ¢ 5212 | 115425 | 135248 | 1554 | 175 |
| 2041 | $22^{2} 58$ | ${ }_{23} 5652$ | ${ }_{1} 59$ | ${ }^{3} 5722$ | 55935 | \％ | 960 | 1：581 | 13 St 38 |  | 17 |
| 208 | 221025 | － 048 | 23 | ＋+18 | $6{ }_{6} 631$ | ${ }_{8} 8$ \％${ }^{\text {¢ }}$ |  | 12.121 |  |  |  |
| 20：2 | 1214 | 0445 | 2658 |  | ¢ 728 | \＆ 545 | 10758 | 121011 |  | 16 1681 1041 | 188 |
| 2016 | 22 1898 | 0841 | 2 2055 | $481 \%$ | 61124 | 8841 | 101154 | 12148 | 1－1224 | 161437 | 1812 |
| 2020 ＇ |  | 01238 | 21451 | ＋13 | 61529 | 88313 | 101551 | 1218 | 141621 |  |  |
| 202358 |  | 016 | 218 | 417 | $5:$ | 817 | 10 19＋8 | 1222 | 142017 | ： 862230 | 1820 |
| 20 3：¢9 | 22 |  | $\frac{2}{2} 26$ |  | 62 | 821 | 1023 | 1225 | 142414 | 152627 | 183 |
| 2035 |  |  | 23037 |  | 6－37 ${ }^{6} 7$ | 8825 |  | 123750 | 1428 40 | 163024 |  |
| \％ 384 |  | 03231 |  | +3254 + |  | $\begin{aligned} & 82924 \\ & 83321 \end{aligned}$ | $\begin{array}{\|l\|l\|} 1031 & 37 \\ 10 & 35 \\ 34 \end{array}$ | 1233 S0 |  | 163420 |  |


|  |  |  |  | May | ne |  |  | Sepr | Or | Nロッ | Oec |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184030 | 204243 | 23373 | 03916 | 23733 | 43980 | 638 | 84016 | 104229 | 124046 | 148259 | 164116 |
| 184427 | 2046 | 224 0 | 04313 | 24130 | 44343 | 632 | $8+413$ | 104624 | 124413 | it to 56 | 164512 |
| 164825 | 25 5036 | 22445 | 04710 | $2 \times 5$ | 44739 | －15 56 | 6489 | 105023 | 124839 | $1+4052$ | 1649 |
| 1a5220 | 205433 | 22485 | 0196 | 54473 | $+5136$ | E 4953 | E 526 | 1054 19 | 12523 | 145448 | 1653 |
| 1550 | 205829 | 225750 | 0553 | 25519 | 4553 | 6 5349 | \％ 56 | 105896 | 12 56 32 | 145843 | 16572 |
| $490: 3$ | 21236 | 225040 | 0595 | 258 | 45929 | －5． 4 | E 5959 | 112 L | 13024 | 15242 | 17858 |
| 1549 | 21623 | 23.93 | 1 250 | 3197 | 533 | 7142 | 9350 | 11 b | 13425 | 15638 | 17 － 55 |
| 19 8 女 | 7\％ 9019 | 25435 | 1652 | 359 | 5722 | $7{ }^{7} 539$ | 9752 | 1110 | $13 \quad 822$ | 151035 | 17858 |
| 1912 | 29.415 | 23 ${ }^{\text {a }} 36$ | 71049 | 395 | $5: 114$ | 7435 | ¢ 1149 | 11.1 | $13: 218$ | 151432 | 171748 |
| －3 1559 | 21.1812 | 231732 | 11445 | 3132 | 51595 | 71312 | \％is 4E | 1111758 | 131515 | 159828 | 17 ¢645 |
| 191550 | 21229 | 211027 | 11642 | 1655 | 51912 | 77725 | 91942 | 112955 | 132012 | 15 1225 | 173047 |
| 192357 | 21265 | 25 2025 | 12239 | 32055 | 5238 | $72 \pm 35$ | 2339 | 11 2552 | 1324 | 152621 | 9734 蒌 |
| 192749 | 2130 | $232+22$ | 9 2\％ 35 | 32452 | 5275 | 32523 | 9273 | 1129 ¢ | 1328 | 153018 | 172835 |
| 895145 | 21.1358 | 292849 | 13032 | 32848 | 5312 | 72918 | 93131 | 111345 | 1112 | 153414 | 1732 |
| 173542 | i1 3755 | 231215 | ${ }^{9} 14.48$ | 31245 | 53358 | 7313 | － 3520 | 1137 | 13 35 ¢ | 153811 | 173428 |
| 173938 | 29 ut 52 | 231012 | ： 3575 | 3 la 41 | 53855 | 3319 | ¢ 352.5 | 19.118 | 13395 | 15427 | 17 4行 24 |
| 194535 | 214548 | 23 408 | 41327 | 34038 | 54259 | 7418 | 9421 |  | ：3 4351 | $1546+$ |  |
| 194731 | 214745 | 23145 | 1 té 18 | $34+35$ | 54048 | 7 434 | $94 \% 18$ | $11+431$ | 134747 | T5 5 50， | $1748: 7$ |
| 195128 | 215341 | 23481 | $!50!4$ | 3481 | 5594 | 7 7 59 | 9517 | 115327 | 135144 | 155357 | 1752：4 |
| 145585 | 2155 | 23 5155 | ；5419 | 35228 | 55441 | 75258 | 95511 | 115724 | 135540 | 155754 | \＄75450 |
| 195921 | $22+34$ | 235554 | 158 E | 35824 | 55837 | 75554 | 959 | $12: 10$ | 135937 | 19\％ 150 | 1807 |
| $20 \mathrm{3if}$ | 22531 | 2才 595 | 224 | 4021 | $6 \quad 234$ | 8058 | 9034 | $\begin{array}{lll}12 & 5 & 17\end{array}$ | $14 \times 3$ | $16 \leq 47$ | 1豆 4 ， |
| 20.714 | $22 \quad 93$ | 0 －$\ddagger 7$ | 2 － 1 | 4.417 | $6 \quad 631$ | E $4 \rightarrow 3$ | ＊10 70 | 12.94 | 14 730 | 16943 | 18 8 0 |
| 301119 | $2213{ }^{2} 4$ | 0 P 44 | 2957 | 4814 | 61027 | 自 84.4 | to 105 | 12 1310 | 141：27 | 15 13 10 | 181157 |
| 20157 | 221721 | 01171 | 21354 | 4：210 | $64 \leq 24$ | 81240 | 10 14 ${ }^{2} 4$ | 1217 | 14 $\$ 5.33$ | 121734 | 161551 |
| 20194 | 232917 | 0 1537 | 91750 | 4167 | E 1810 | 89637 | 1017 | 12213 | 148920 | ：62 2113 | 111950 |
| 2021 | $22=514$ | 01734 | 22487 | 5202 | ¢22：7 | E 2033 | 102237 | $1: 250$ | 142316 | 158530 | 182346 |
| ${ }_{5}^{2} 02557$ | 12 2910 | 02130 | 22543 | 4240 | 02613 | \％ 3430 | 102443 | ＋27856 | 142713 | 162926 | 1日 27 |
| 203054 | $\underline{23} 3$ | 027 2？ | 32940 | 42757 | 69010 | 82.27 | $1030=0$ | 121253 | 143： 0 | 163323 | 18318 |
| 203458 203847 |  | 0 0 0 | 2337 | 43153 <br> 4 | 6348 | $\begin{aligned} & \text { g } 323 \\ & \text { E } 32 \end{aligned}$ | $\begin{aligned} & 103436 \\ & 103533 \end{aligned}$ | 123648 | $\begin{array}{ll} 143 \% & 6 \\ 1439 & 3 \end{array}$ | 163715 | $\begin{aligned} & 183536 \\ & 183933 \end{aligned}$ |


| jan． | Febs | Mas | Apt | May | lune | detr | A 4 L | 5 ept | Oce | Nov． | Des． |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 484524 | $20<512$ | 22366 | 03619 | 23636 | 2384 | 4376 | 83819 | 10.432 | 123449 | 14422 | 16 40 18 |  |
| 184726 | 20495 | 22402 | 0.1216 | 24032 | 4245 | 6 at 2 | 84315 | 70 4528 | $12 \times 245$ | 144558 | 164415 |  |
| （18359 22 | 20 牫行 | 224359 | 04612 | 2425 | $446+2$ | 64459 | 84712 | 104925 | 124742 | 144955 | $16481 \%$ |  |
| 185519 | 205752 | 224756 | 0509 | 24825 | ＋ 5038 | 64855 | E 51 e | 105322 | 125138 | $1453 \leqslant 1$ | 16528 | 4 |
| 185915 | 21927 | 225152 | 054 | 25222 | ＋5435 | 65252 | 8555 | 10579 | 12555 | 14574 | 16S65 | 5 |
| 12312 | 21525 | 225340 | 0582 | 25418 | 4553 | 65448 | 85 2 | 11 1 15 | 125931 | 15144 | 1701 |  |
| 1578 | $21 \quad 922$ | $2259+5$ | 1.58 | 3015 | 522 F | 7045 | 9255 | 11 59 | $13{ }^{3} 28$ | $15 \quad 541$ | 17158 |  |
| 10 11 | 21 i 118 | 2394 | 1555 | 3.411 | 5625 | 7441 | \％ 655 | 119 | 13724 | 15 9 38 | 17754 | ${ }_{5}^{6}$ |
| 1915 ？ | 211715 | 727 78 | 1959 | 388 | 51021 | 7838 | \％1151 | 1113 | $13112:$ | $1513 \begin{array}{ll}13 & 3\end{array}$ | 171151 | ${ }^{5}$ |
| 1018 18 | 212115 | 251135 | 1 柱隹 | 3125 | 51418 | 71235 | 91446 | 1117 | 131517 | 151739 | 1715 A7 | 10 |
| 197255 | 2125 日 | $25 \quad 1531$ | 177 | 3161 | 51814 | 71631 | 918 da | 112057 | 131714 | 152127 | 17 1944 | 11 |
| 19265 | 21294 | 231528 | 121 | 3 ys | 52211 | 71020 | 92241 | 112454 | 13211 | 1525 24 | 1723年0 | 12 |
| $19304 E$ | 21331 | 232325 | ， 2538 | 32354 | 5268 | 72424 | 92037 | 182854 | 13277 | 152920 | 172737 | ：3 |
| 19344 | 213658 | 232721 | 12934 | 3 Tr 51 | §30 | 72921 | 43034 | 113247 | 13314 | 158387 | 173134 | ${ }^{4}$ |
| 15384 | 214054 | 23－18 | 13334 | 33147 | 5341 | 73217 | ¢ 34， 31 | 113644 | $13 \quad 350$ | 153713 | 173530 |  |
| 19 4237 | 14 24.41 | 253514 | 13727 | $3{ }^{35} 4$ | E3757 | 73614 | 93827 | 114040 | 133857 | 152110 | 173927 |  |
| 154634 | $214 E 4 T$ | 233911 | 14126 | 33549 | ${ }_{5} 4154$ | 74010 | 94224 | 114437 | 134253 | T545 ？ | 174323 |  |
| 155039 | 215244 | 2343 ？ | 1 45 20 | 34317 | 54550 | $7 \times 47$ | g at 26 | 114033 | $13+650$ | 15493 | $17 \pm 720$ |  |
| 195427 | 215640 | 23474 | 14917 | 34734 | 54947 | \％ 78 | $\bigcirc 50: 7$ | 115230 | 135046 | 15530 | $175{ }^{1} 16$ |  |
| ：95624 | 12037 | 23510 | 153 i4 | 35930 | 55343 | $\overline{52}$ | $954: 3$ | 1：5826 | 135443 | 15 50， 56 | 175513 |  |
| 20220 | 2243 | 235457 | 15798 | 35527 | 55740 | ？ 5557 | 95810 | 12.523 | 13 5 5 4 | 16053 | 175 |  |
| $20 \quad 417$ | $22 \quad 830$ | 235853 | 217 | $\pm 5923$ | 6136 | 7555 | 102 | 12420 | 14235 | 16449 | $1 \mathrm{E}^{3} \mathrm{3}$ |  |
| 201013 | 22122？ | 0250 | $2 \begin{array}{lll}2 & 3\end{array}$ | 4320 | － 533 | － 350 | 105 | 12 E 16 | 14633 | 16 946 | 1873 |  |
| 201410 | $22: 16$ | 0647 | 290 | 4796 | ＋ 930 | E 746 | 1010 | 125213 | ：4 1029 | 161242 | 181059 |  |
| 9018 E | 2 2 20 | 01043 | 21256 | $4: 173$ | 61756 | 8114 | 101258 | 12169 | 141426 | 761539 | i814 56 |  |
| 2022 | 12.2416 | 09440 | 21553 | 415 ？ | 61723 | E 1539 | 101753 | 12206 | 141822 | 162036 | 181.85 |  |
| 20260 | 222843 | 0 183c | 22045 | 415 ¢ | ¢ 2119 | 81930 | 102149 | 12242 | 142219 | 162432 | 182249 |  |
| 202956 | 2232 \％ | 02331 | 22546 | 4233 | 02516 | 82313 | t0 2546 | 123759 | 142615 | 162629 | 182645 |  |
| 203353 |  | 02629 | 7 29442 | 426.59 | 62912 | 82729 | R028 22 | 123155 | 143012 | le 3225 | 183042 |  |
| 203749 |  | 03 c 2 s | 23239 | 43056 | 633 | \＆ 3126 | 103330 | $12 \leq 55$ | 14349 | 价 3622 | 促3498 |  |
| 20.4176 |  | 03422 |  | 43452 |  | 83522 | 103735 |  | 1438 |  | 163835 |  |


| 13． | Frb | 9 | A号 | M出 | bisne | Juty | 4．45 | 5 ¢防 | Oer． | Nar | Dex | 19 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 181232 | 204745 | 23358 | 03721 | 23538 | 43759 | 6368 | \＆ 382 | $10 \leq 0311$ | 12385 | 14.11 | 163921 |  |
| $18+58$ | 2048 | 22395 | 01183 | $23 \overline{45}$ | 14148 | 6405 | B42 ${ }^{\text {B }}$ | 10 4411 | 124248 | 14451 | 164317 | ？ |
| 185025 | 205238 | $22+31$ | 04515 | 24319 | 44544 | 644 | E 4614 | 104827 | 12 2E 44 | 144857 | 164714 |  |
| 185421 | 205635 | 224658 | $0+911$ | 24728 | 44941 | 64758 | － 5011 | 105224 | 125041 | 145354 | 165110 | 4 |
| 185818 | 210 | 225055 | 0538 | 25124 | 65337 | 65954 | E 547 | 105621 | 125437 | 145650 | 1657 |  |
| 19214 | 2i 428 | 225451 | 0574 | 25521 | 45734 | 65539 | 近 5 | 19017 | $12583 i$ | $\begin{array}{llll}15 & 0 & 4\end{array}$ | 16593 |  |
| 19 ¢ i | $21 \quad B 24$ | 225848 | $1 \begin{array}{lll}1 & 1\end{array}$ | 25917 | $\begin{array}{llll}5 & 1 & 31\end{array}$ | 65447 | 523 | 11414 | 13230 | 15 443 | 1730 |  |
| 15107 | 271221 | 23244 | 1457 | $\begin{array}{llll}3 & 3 & 14\end{array}$ | $5 \quad 527$ | 7344 | 5557 | i1 8 10 | $13 \quad 627$ | 15840 | 17 ¢57 | 8 |
| 1914 | 249617 | 25 \％ 41 | 1854 | $\begin{array}{lll}3 & 710\end{array}$ | 5934 | 7740 | 9554 | 1112 ？ | 13 1024 | 1512 漝 | 171053 |  |
| 19181 | $2{ }^{2} 3014$ | 231037 | 19250 | $3: 17$ | 51329 | 71137 | 9：3 50 | 11115 | 131420 | 951633 | 171450 | 10 |
| 19215 | 112410 | 211434 | 91647 | 3154 | 51717 | 71534 | ${ }_{5}^{15} 47$ | ：120 0 | $13: 816$ | 15 2030 | 171816 | $1:$ |
| 192554 | 21207 | 231830 | 120.44 | 3190 | 52113 | 71930 | 92143 | 142356 | $1322: 3$ | 152426 | 172243 | 12 |
| 103950 |  | 232257 | 12449 | 32157 | 52510 | 72327 | 92540 | 112753 | 132610 | 152823 | 172659 | 13 |
| 193347 | 21360 | 232624 | ： 2837 | 32653 | 5296 | 72723 | 52936 | 113150 | 13706 | 153219 | 173036 | 14 |
| 193743 | 212957 | 233020 | 13233 | 31050 | 5313 | 73120 | 93333 | 1135 ab | $1334{ }^{3}$ | 75 36 it | 173433 | 15 |
| $19 \times 1+0$ | 214333 | 233417 | 13630 | 31446 | ${ }_{5} 570$ | 73516 | 93730 | 113943 | 13 37 5\％ | 154012 | 173829 | 15 |
| 194536 | 274750 | 233813 | 94026 | 33845 | 54056 | 73913 | 94126 | 114319 | $13+156$ | 15449 | 174226 | 17 |
| 194933 | 295146 | 234210 | 14423 | 34239 | 54453 | 7439 | 94523 | 11 47 36 | $13+55$ | 4548 | 174622 | 18 |
| 195310 | 115543 | 23468 | 1 1499 | 346313 | 54849 | 7476 | 94919 | 415112 | 131949 | 15522 | 175019 | 19 |
| 195726 | 2： 5939 | 23503 | 15215 | 35033 | 55246 | 7513 | 95316 | 115529 | 135345 | 155559 | 175415 | 20 |
| －0 ${ }^{1} 23$ | 22336 | 235359 | 156：2 | 35429 | 55642 | 75459 | 95712 | 115925 | 135742 | 155455 | 175812 | 28 |
| 20519 | 22735 | $23575{ }^{\circ}$ | 209 | 35826 | 6039 | 7585 | 10：9 | 12322 | 14.139 | 16352 | 1828 | 22 |
| 20916 | 221429 | 0 ： 53 | 214 | 1223 | 6435 | \＆ 252 | 10.5 | 12719 | 14535 | 16 748 | $18 \quad 65$ | 23 |
| 201312 | 221525 | $0{ }^{0} 59$ | 282 | 4.519 | 6832 | 8645 | $10 \quad 92$ | 121115 | $14{ }_{14} \mathrm{l}_{1} 32$ | 161145 | 18103 | 24 |
| 20179 | 221827 | 0 0 $0^{4}$ | 21159 | 41015 | C12 23 | 81045 | 101259 | 321512 | 141328 | 161542 | 181358 | 25 |
| 20215 | 223319 | 01342 | 21555 | 41412 | 61625 | 81442 | 10165 | 12198 | 141725 | 16 i9 38 | 181755 | \％ |
| 20252 | 222715 | 01739 | 21952 | 4188 | 62022 | \＆ 1838 | 102052 | 12235 | 11422 | 162334 | 182951 | 21 |
| 202659 | 223112 | 02135 | 22348 | 423 | 62418 | \＆ 2235 | 102448 | 12271 | 142518 | 152731 | 182548 | 23 |
| 203255 |  | 02532 | 22345 | 4262 | 62815 | 82632 | 90.2835 | 123058 | 142914 | 163128 | 182944 | 39 |
| 204652 |  | 02925 | 23141 | 42958 | 63211 | 83028 | 103241 | 12345 | 143311 | 163524 | 1 l | 31. |
| 204048 |  | 03325 |  | 433 E5 |  | © 3425 | 103638 |  | 1437 |  | 183737 | $3 \%$ |


| 1959 | $1 a n$ | Feb | Mar | Anril | May | June | July | Aug． | Sept． | Ocr． | Now | Dex． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $18+134$ | 20.1347 | 223411 | 03624 | 23440 | 43554 | 63510 | 63724 | 103937 | 123753 | 14406 | 463823 |
| 2 | $16 \div 31$ | 2017 4才 | 22387 | 0.4029 | 23837 | 44050 | 6397 | $8-120$ | 104333 | 124150 | 1444 | 16422 星 |
| 1 | 18 － 1927 | 20510 | 22 द2 4 | 04417 | $2+234$ | 4448 | 6433 | 84597 | 104730 | 124545 | 14.4739 | 16 ${ }^{\text {de }}$ 15 |
| 4 | 165324 | 20.5537 | 22.40 | 04813 | $2+630$ | 4 4，41 | 5470 | 84513 | 105126 | 124943 | 145156 | 163013 |
| 5 | $11^{1} 5720$ | 205933 | $22 \sim 57$ | 05210 | 25027 | $\div 52 \div 0$ | 65057 | 85310 | 105523 | 135399 | 1455 | 1654 |
| 6 | 1919 | 2； 330 | 225353 | 0 － 57 | 25423 |  | $65+55$ | 857 | 1059 ：5 | ：2 2736 | 145949 | 1658 |
| 7 | $\begin{array}{lll}19 & 5 & 13\end{array}$ | 21727 | 225750 | 103 | 25820 | 5033 | $\square 5850$ | 913 | 11316 | 13133 | 15346 | 17.2 |
| E | 18 \％ 10 | $21+1{ }^{1} 21$ | $23: 4$ | 140 | 3 3 16 | 5430 | 7246 | 9459 | 11715 | 13529 | 15742 | $17 \quad 559$ |
| 5 | 1713 ¢ | 21 15 20 | 23540 | 1756 | $\begin{array}{llll}3 & 6 & 13\end{array}$ | 5826 | 7643 | 5 E 56 | 1111 | ［3 526 | 1511 15 | 17 56 |
| 10 | 19173 | 211916 | $23 \quad 9+0$ | ； 1153 | \％ 10 | 51223 | 71039 | 95253 | 1115 | 131322 | 151535 | 171352 |
| 11 | 19210 | 212513 | 231336 | 11540 | 3146 | 51618 | $71+3$ | 91649 | 11492 | 131719 | 519 5 | 171749 |
| 12 | 192455 | $2127 \%$ | 231713 | 1 19946 | 3182 | 52016 | 7 7日 32 | \％ 2046 | $1122{ }^{13}$ | 137115 | 15.3228 | 177145 |
| 13 | 118283 | 21316 | 232129 | 12342 | 32159 | 52412 | 72229 | $\bigcirc$ | 11255 | 1325：2 | 152725 | 172542 |
| 97 | 193248 | $2135-2$ | 232546 | 12339 | 32556 | 5280 | 72626 | 92859 | 119052 | 13258 | 153122 | 172538 |
| 15 | 193646 | 213859 | 232922 | 13136 | 32552 | 5325 | 73022 | 93235 | 11 it 45 | 13335 | 1535 te | 173335 |
| 15 | $19 \times 42$ | 214256 | 23 31：9 | 13532 | 33349 | $535 \geq$ | 75419 | 93632 | 113845 | 13372 | 153915 | 173731 |
| 17 | 19.433 | 214652 | 233718 | 13929 | 33745 | 53959 | 7 7 3 15 | 94028 | 114242 | 174058 | $15 \times 151$ | 174128 |
| $1 \varepsilon$ | 194835 | 215049 | 23 兟12 | 14325 | 34143 | 54355 | 74217 | 94425 | 114536 | 134.455 | 15 470 | 1715 |
| 19 | 195232 | 2154.45 | 23459 | － 4722 | $3-538$ | 54752 | 746 E | 94822 | 115035 | $13 \div 85$ | 1551 | 77 17921 |
| 20 | 495627 | 215842 | 2349 | 1 告 18 | 4935 | \％ 518 | 7505 | 95218 | 115431 | 4］ 5248 | is 591 | 1753516 |
| 21 | 20625 | 22238 | 23532 | 15515 | \％ 5231 | 55545 | 7541 | 25615 | 115826 | 1356 ＊4 | 155857 | 175718 |
| 22 | $20<22$ | $22 \quad 635$ | 235658 | 15919 | 35726 | 55941 | 75758 | 10011 | 12224 | 14.081 | ict 254 | 18111 |
| 23 | $2{ }^{2}$ \＆ 18 | 22 10 31 | 0055 | $\begin{array}{lll}2 & 3 & 8\end{array}$ | 4 － 25 | 6338 | － 155 | 10 4 8 | $12 \begin{array}{lll}12 & 621\end{array}$ | 14． 477 | 16.65 | 10 |
| 2.4 | 201215 | 22 i4 28 | 045 | 275 | 4521 | 6734 | Q 551 | 10 \＆ | 121017 | 14 E34 | 161047 | 1 16 4 |
| 25 | 20 15 11 | 221825 | 0 － 848 | $211 \%$ | ＋ 918 | 51931 | 8. | $\therefore 0121$ | 1214.4 | 1．412 3 | 15 is 4.4 | 18130 |
| 26 | 2020 2 | 2222.1 | 01245 | 21458 | 41314 | 51528 | 81344 | 501557 | $12181:$ | 14.627 | 161540 | 181657 |
| 27 | 20244 | 222618 | －1541 | 31854 | 41711 | 61924 | 81741 | to 1954 | 12227 | 142024 | 162237 | 720 20.4 |
| 21 | 20281 | 223014 | 02038 | 22259 | 4217 | 62321 | \＆ 2137 | 102350 | 1225 | 142420 | 16 20． 33 | ：824 50 |
| 2 | 203158 |  | 02434 | 22647 | 4254 | 52787 | 82534 | 102747 | 12300 | ｜142817 | 163030 | 182847 |
| 33 | 203554 |  | 03831 | 23044 | 4297 | － 31 14 | 82910 | $10314+$ | 123357 | $1+32: 3$ | 163426 | 463243 |
| 31 | 203951 |  | 03227 |  | 43257 |  | 83327 | 101540 |  | 143610 |  | 183643 |

1960

| 1页． | Fob． | Mas． | April | May | Jure | July | Abs | Sepr． | Oet． | Nor． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184036 | 204250 | 223710 | ＠ 3523 | $2373 \%$ | 13953 | 6389 | 84022 | 104236 | 124052 | 1443 | 164122 |
| 18 I， 33 | 20－76＋5 | $22+16$ | （1）319 | 24136 | 41349 | 642 ¢ | ［ $0^{4}$ | 10 ¢6 32 | 12 4．149 | 14172 | 164519 |
| 18.1829 | 203043 | 2245 | 0.4716 | 24512 | 4 4746 | $6+62$ | ［5E 16 | 105929 | 124845 | 145058 | 16.515 |
| 185225 | 205434 | 224859 | 03112 | 24529 | － 5142 | 64959 | －5212 | 105425 | 125247 | 145455 | 185312 |
| 1856 53 | 205836 | $22 \$ 250$ | 0559 | 25326 | $\bigcirc 5519$ | 6535 | 8569 | 105822 | 125638 | 145853 | 1657 |
| 19019 | 21232 | 223552 | 0535 | 25722 | 45935 | 6575 | $\bigcirc 05$ | 11218 | 13035 | 15248 | 171 |
| 19416 | 21639 | 23049 | 1 32 | 3119 | 5332 | 7949 | 942 | 11 615 | $13-31$ | 13， 8045 | \％ 5 |
| 19612 | 211025 | 23 4 45 | －659 | $\pm 515$ | 5720 | 7545 | 9758 | 111011 | T3 228 | 1510 11 | 77858 |
| 17129 | 21 1422 | 23842 | 11055 | 3712 | 51125 | 7.42 | \％ 1155 | 11 14 | 191225 | 151438 | 171254 |
| 19：6 5 | 211819 | 231239 | 4145 | ${ }^{3} 138$ | 51522 | 71338 | 91551 | 1 i 8 | 131621 | $15183 *$ | 171651 |
| 17202 | 212215 | 23 \＄6 35 | 17848 | $\begin{array}{llll}3 & 1.7 & 5\end{array}$ | 亏！！ | \％ 1735 | 919 46 | －1 221 | ：32018 | 1522 2 \％ | 172048 |
| 19 ²3 59 | İ 7 2 12 | 232092 | 12245 | 3211 | 52315 | 72931 | \％İ 45 | 112553 | 132414 | 152627 | 17244 |
| 192755 | 21308 | 232428 | $1264 \%$ | 32085 | $5271 \%$ | 72526 | － 274 | 112954 | 132811 | 153024 | 172849 |
| 103152 | 21 34 5 | 232825 | 13038 | 32555 | 5318 | 72924 | 93138 | 113351 | 13327 | 153421 | 17 35 37 |
| 1935413 | 21381 | 233219 | ： 3434 | 3 3 5： | $535 \sim$ | 7331 | 93524 | 113747 | 1336 | 153817 | 1736 3－4 |
| 193945 | 214158 | 23 3518 | （ 3831 | 5 35 ¢8 | 5301 | 73718 | 93939 | 119 | 12.100 | 154214 | 174030 |
| 10．4） 41 | 21.15 54 | 234017 | 1－1228 | 37044 | $5 \div 257$ | 7 7114 | 9.327 | 11.8540 | 13.13 .5 | － 5 \％ 10 | 17 －14 27 |
| 19 47 38 | 214531 | 23－4411 | 1 －15 24 | 34.89 | 5 ¢ 5 ¢， 54 | $7 \cdot 9511$ | 9478 | 11 493？ | 13 ＋75．4 | 15507 | $17 \times 1823$ |
| 195134 | 215348 | 23－18 8 | － 5021 | 3 5037 | 550 | 7 ¢\％E | ¢ 5120 | 115334 | 135150 | 15 5 | 175220 |
| 195531 | 21574 | 2352 | 1549 | 3523 | 5 54 ${ }^{4}$ | 753 － | $\bigcirc 5517$ | 115730 | 135547 | 15580 | 175617 |
| 195927 | 22141 | 23551 | 15517 | 35630 | 558 ＋4 | 7570 | － 59 id | 12127 | 1359 4］ | 15 5 | 1t 013 |
| $20 \quad 3 \quad 24$ | $22 \leq 37$ | 235957 | $2 \geq 10$ | 4027 | － 240 | E 057 | 10310 | $12 \quad 53$ | $1+3+0$ | 16553 | 15 $\div 10$ |
| $20 \quad 721$ | 22 ¢34 | 0254 | $\begin{array}{llll}2 & 6 & 7\end{array}$ | 4 | 66 67 | 8451 | $10 \div 7$ | 12920 | 14736 | 16.550 | 1888 |
| 201117 | 221330 | C－75 | 2103 | 4820 | 5 10 ： 5 | $8 \quad 850$ | 10 ： 3 | 121316 | 14 113 | 16：1346 | 18123 |
| 201514 | 221727 | 01147 | 2140 | 41217 | E 1430 | E1247 | 10150 | 121713 | 141529 | 161743 | 1815 39 |
| 201910 | 222123 | $015+3$ | 21757 | 41613 | 585 | ，16 43 | 10185 | 12219 | 9， 1026 | 162139 | 181956 |
| 20237 | 2\％ 2520 | $014=0$ | 3 at 53 | $420: 0$ | 62233 | 82040 | 102253 | 1225 | 142323 | 162535 | 昭 2352 |
| 2024 3 | 22259 | 0238 | 22530 | 424 | 62020 | 82435 | 10254 | 12753 | 1427 if | 162932 | 192749 |
| 20310 | 223313 | 02733 | 22947 | 4283 | E 3016 | \＆283］ | 1030 和 | 123259 | 1431 16 | 16 332 | 18 $31+6$ |
| 203156 |  | 03130 | 23.545 | 4315 | 5 313 | 83220 | 103442 | 12 365 | $1+3512$ | 153725 | 18 35.4 |
| 203853 |  | 03526 |  | 45556 |  | 82025 | 103637 |  | 35 |  | 183939 |

1961

| 14. | Feb． | Mar． | Aprat | May | duste | july | A | Sepr． | Oct． | Nox． | Dec． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 184315 | 20.4548 | 223612 | 03825 | 2380 | 43055 | b 3712 | 83525 | 104138 | 123955 | 14 Az E | 16 40， 24 |
| 184732 | 204945 | 22409 | 0.1222 | 24038 | $4+251$ | 5418 | 9 4327 | 104535 | 12 43 51 | 14 464 | 164427 |
| 18 5728 | 20.3742 | 22445 | 0.4618 | 2 ＋4 35 | 44646 | क 455 | 日 4748 | 10.4931 | 124748 | $1<50$ \％ | 4t 4817 |
| 185525 | 205738 | 22482 | 05015 | 2483 | $\bigcirc$ | 5491 | 日 5114 | 105328 | 125144 | 1＜53 57 | 165214 |
| 285921 | $21 \quad 135$ | 275158 | 05411 | 25228 | $\cdots 5441$ | － 5258 | 855 ：1 | 105724 | 125571 | if 5754 | 165611 |
| 193 | 21531 | 225555 | OSE 8 | 25424 | －5838 | 65.65 | 8598 | 11 ： 21 | 125937 | is 158 | 1707 |
| 19715 | 27928 | 225951 | 124 | 3021 | 5234 | 7051 | 93 | $11 \begin{array}{ll}11 & 5 \\ 17\end{array}$ | 13134 | 15 S 47 | 1744 |
| 121111 | 291324 | 33 3 48 | 1 \％ 1 | $3 \div 18$ | 5831 | 7 － 47 | 97 | 11914 | 15730 | 15044 | 1780 |
| t915 8 | 211721 | 23 74 | 1958 | 3 E17 | 51027 | 7 E．44 | 9305 | 111310 | 131127 | 15：3 40 | 171157 |
| 15104 | 212117 | 231151 | 11354 | 31211 | 51424 | 7124 | 99.54 | 11173 | 131524 | $1517 \quad 37$ | 171553 |
| 1923 ！ | 212514 | 331537 | 11754 | 3957 | 51820 | 71637 | 91850 | 11214 | 131920 | $15 \leq 133$ | 171950 |
| 192657 | 212311 | 231734 | 1274 | 3204 | 52217 | 72034 | 92247 | 11250 | 132317 | 152550 | 172346 |
| 193054 | $2133 \quad 7$ | 232331 | 12544 | 3240 | 52314 | 72430 | 52643 | 11285 | 132713 | 152926 | 872743 |
| 113450 | $21 \quad 37$－ | 232787 | 12940 | 32757 | 53010 | 72827 | 93040 | 11 32 53 | 13 2110 | 15 3523 | 173140 |
| 1738 | 21410 | 23 3124 | ： 3337 | 33153 | 53.9 | 73223 | － 3497 | 113650 | 13356 | 153719 | 173536 |
| 19 42 44 | 21 W4 57 | 25350 | 15733 | 33550 | 5383 | 73620 | 9385 | I11 4045 | 13393 | 1545 it | 173933 |
| $1946-10$ | 21485 | 253017 | 14：30 | З 3947 | $5 \pm 0$ | 71016 | 9423 ¢ | it 4443 | 13 － 4 ¢ 5 | 154513 | 174329 |
| 195037 | 215250 | $23+1313$ | 1 4526 |  | $5+556$ | $7 \times 13$ | 94626 | 114839 | 13455 | 15459 | 174726 |
| $19543\}$ | 2156 | 23 4710 | $1+923$ | 34740 | 5485 | 7 7 4 | 95023 | 11 ¢2 30 | 135052 | 15536 | 17512 |
| 195836 | $22 \quad 043$ | 23516 | 15320 | 35130 | 55345 | T 32 | 95419 | 115631 | 13549 | 15572 | 175519 |
| $20: 26$ | 22480 | 2355 | 15715 | 35533 | 55746 | 75 | 95816 | 12024 | 135846 | \％ 059 | 975915 |
| $20623$ | $22 \quad 836$ | 23590 | $\frac{2}{2} 14$ | 35929 | $6{ }_{6}^{6} \quad 1+3$ | 75959 | $10 \quad 212$ | 12426 | 14243 | 40455 | $16 \quad 312$ |
| $201019$ | 221233 | 0256 | 259 | 4326 | $6 \quad 539$ | ¢ 354 | 1069 | $12 \quad 622$ | 14635 | i6 6 52 | 1879 |
| $\begin{aligned} & 201+18 \\ & 2018 \end{aligned}$ | 221629 | 0.653 | 2.96 | ＋ 727 | 5936 | 8752 | 1010 E | 121219 | 171035 | 181248 | 枹 115 |
| $\begin{aligned} & 2618: 3 \\ & 2022 \end{aligned}$ | 222020 | 01049 | 2132 | 41190 | 6：3 37 | 8 it－5 | 10 11 2 | 121515 | 141432 | 169645 | $18 \pm 5$ |
| 2026 | 22 20 19 | C14 0 | 2765 | －1516 | －17 79 | 81545 | 90175 | 122012 | 141828 | 162042 | 181858 |
| 20.102 | 223215 | 02237 | $\frac{1}{2} 7145$ | － 415 | 6－2125 | E19 42 | 10 215 | 12248 | 142225 | 1624 姫 | 162755 |
| 203338 |  | 02635 | ¢ 288 | 4275 | 629 18 | 82735 | 1029 | $12 \begin{aligned} & 128 \\ & 12 \\ & 32\end{aligned}$ | 1425 14 14 30 | 14 1685 18 32 3 | 182551 183048 |
| 2017 375 |  | 0 O 3032 | $232+5$ | 4392 | － 3315 | 8 3132 | 1033 | 123558 | 1\％ 7 － 4 i 5 | 183078 | 18 <br> 18 <br> 18 <br> 18 <br> 1048 <br> 18 |
| $2 \mathrm{C}+115$ |  | 0.3125 |  | ＜ |  | － 3528 | 10374 |  | $1+3819$ |  | 163041 |


| ก． | Feb． | Mat | Aptal | May | wne | Sulp | Aus | Sepl | Or | for | Lexe | 198 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 18453 | 20＋－ 51 | 22 3514 | 03728 | 735 \％ | 42737 | 63614 | 8 96 27 | 104040 | 123857 | $14+190$ | 18.529 | $\stackrel{1}{1}$ |
| 18.4 | 204547 | 223511 | 04124 | ＋ 3541 | $4315 \times 4$ | $4+011$ | 81224 | $10 \cdot 437$ | 12 42.24 | 14．14 18 | 164523 | 2 |
| 195939 | $21524{ }^{1}$ | 22437 | ¢ 45 3 \％ | $\pm 4337$ | ＋+550 | $644 \%$ | \％¢ 20 | $10 \times 834$ | $12 \leq 50$ | 1489 | 164720 | J |
| $11^{16} 5+27$ | 20364 | 22474 | 0.4917 | $2{ }^{2} 478$ | $\div 4{ }^{4} 47$ | ¢ 484 | 95017 | 165230 | 125047 | 1457 | to 59 | 4 |
| 125824 | 2： 037 | 21 | 05314 | 2 5： 30 | ＋5．3 46 | －520 | － 5413 | 10 5627 | 1254.3 | 1455056 | 16 5 5， 13 | 5 |
| $15 \% 20$ | 2143 | 225457 | 05710 | 233 27 | 457 ＋it | 6 5557 | － 5810 | is 023 | 125840 | 15053 | 185910 | ${ }_{6}$ |
| \％\％ 6 \％ 7 | $27 \times 10$ | 2758 | 177 | 25913 | $5 \quad 137$ | 65553 | $\bigcirc 2$ | 11420 | 13 236 | 15 | 17 ${ }^{\text {\％}}$－ | \％ |
| 159014 | 21827 | 23550 | $1{ }^{1} 5$ | 3 3 20 | 5535 | 7 is | \％ | 1188 | 13.633 | 15 日 66 | 1779 | 8 |
| 19 14， 10 | 211023 | 23647 | 180 | 3717 | 5930 | 778 | ${ }^{9} 400$ | 111215 | 11929 | 15124 | 17 w | ${ }^{5}$ |
| 1578 | 212020 | 23104 | 11256 | 31113 | 51120 | 71143 | 913 乐 | 1716 | 13 i1 26 | 1515.38 | 17.456 | 10 |
| 19223 | 23.216 | $2314+0$ | 1253 | 31510 | 51723 | 79540 | $\bigcirc 1751$ | 11206 | 131825 | 15.0 | 17\％ ¢ $^{\text {¢ }}$ | 11 |
| 14.20 | 217817 | 231636 | 12050 | 3196 | 52119 | 71836 | 92148 | 11283 | 132219 | 152432 | 17724 | 12 |
| 192956 | 21210 | 23223 | 1 ${ }_{1}$ | 33．3 | $5{ }^{5} 510$ | 723 | 425410 | 182759 | 132016 | 15 2 年 25 | 172046 | 13 |
| 1933 3 | 21.26 | 232630 | 92 | 32050 | 52915 | 72727 | 92442 | 11 315 | 135012 | 15.325 | 173043 | is |
| 143749 | 21.403 | 233026 | 13239 | 3 $30 \leq 0$ | $533 \%$ | ［3126 | 9339 | ${ }^{11}$ 法52 | 13.39 | 453622 | 173439 | 15 |
| 19 4i 46 | 21：43 59 | $233^{34} 23$ | 13 l 碞 | 3 54ち2 | 5376 | 73522 | 95734 | 11 3940 | ： 3 ］ 38 | 15 to 18 | 1831835 | 16 |
| 1948 | 214756 | 233819 | 14032 | 3） 3849 | 5412 | 73919 | \％ 4132 | 11 1133 | 113.12 | 154415 | 174232 | － |
| 9\％ 99 | 27.59 | 234216 | 3 $4+429$ | 1 4248 | 5.759 | 74315 | 94524 | 11 47742 | 13 却 36 | 15 \＄8 12 | 174529 | 18 |
| （1959 | 27 215 29 50 49 | $\frac{23}{23} 50$ | 1 $1+8$ | 3 364 | 5 5 | 74743 | 9.9485 | 115936 | $\begin{array}{lllll}13 & 49 & 55 \\ 13 & 51 \\ 13\end{array}$ | 15558 | 175025 | 19 |
| 20 +20 |  | $2)^{2} 5$ | 156 | 35435 | 554．45 | 455 | 95718 | 115931 | 135748 | 16 | $17{ }^{17} 5$ | 1 |
| 20575 | 29739 | 23582 | 2015 | 35852 | 6.45 | 7 \％ | 10 i 15 | 12 3 28 | 15145 | 16358 | $18^{1} \times 15$ | 2 |
| 2098 | 22 ${ }^{2} 185$ | －： 57 | $\frac{2}{2} \quad 412$ | 4238 | －+42 | 9258 | 10511 | 12725 | $14{ }^{14} 511$ | 16.754 | 12.611 | 71 |
| $2013: 8$ | 72 13， 32 | 0555 | $2{ }^{2} 8$ | $\pm 63$ | 6 \％ 3 \％ | 9 635 | 10. | 121121 | 14938 | 16． 1751 | 1810 g | 4 |
| $20.7 \% 5$ | 22142.8 | $00^{9} 5$ | 2125 | ＋1021 | －： 135 | 810 5： | ：13 13 | $12: 159$ | $1413{ }^{34}$ | is is ${ }^{\text {a }}$ \％ | te 11 | 5 |
| 202112 | 22.335 | 01348 | 216 | 41518 | － 9611 | 8 8．748 | 10171 | $\begin{array}{ll}12 & 18 \\ 12 \\ 12\end{array}$ | 1417 11 | 16184＊ | 15481 | 26 |
| 20255 | － 2721 | 017 －5 | 21558 | ＋1815 |  | ［154＊ | 102058 | 位玟11 | 1421 27 | 16． 2311 | ：887157 | 77 |
| 29.15 | 22.18 | $0 \times 14$ | 22154 | $\underline{+2211}$ | 62.204 | 822 1t | 102544 | 1227 |  | $16: 337$ | 组 2554 | $30$ |
| 2013 |  | 02538 | 2375 | $\pm 2 e^{8}$ | 6 忧 21 | 82.38 | 102859 | 12 | 142920 | 163134 | 582950 | $29$ |
| 20 30.5 |  |  | 23148 | +30 +3 | 63217 | 目3034 | 103247 | 1235 | 143317 | is 3530 |  | $30$ |
| 20 054 |  | C33 31 |  | 434 |  | 8531 | $1036+4$ |  | 143714 |  | 123741 |  |
| 130 | Feb | Már | A．pril | 『1ay | ）：s， | 14．7 | AL | Scat． | cs | Now | Dee | 196 |
| 194．40 | 20453 | 2734 | 03630 | 23442 | 4370 | क 3517 | 0 | 1039 33 | 1238 | 4013 | 163829 | 1 |
| 16.53 | 204750 | 223895 | 194327 | 2384 | 44056 | 63913 | 2 1126 | 1043＋6 | $12 \times 156$ | 14449 | 的 42 | 2 |
| 14．4933 | 20514 | 22 秘 10 | 0.423 | $2 \div 240$ | －14453 | 6419 |  | $10-478$ | 1245 | 1446 | 16.463 | 3 |
| 193310 | 205543 | 22 48？ | 04820 | 24636 | 7－16 49 | B5i？6 |  | 10 5：31 | 124940 | 1.452 | 165099 |  |
| 185.72 .5 | 2089 | 2230 | 55216 | 25033 | 4524 | 651.3 | $8 \pm 316$ | 105529 | 125346 | I45599 | 155496 |  |
| 19 ： 20 | 31 3 30 | 22340 | $056: 3$ | $25+29$ | $\because 5643$ | 65.5 | 85973 | 30596 | 125742 | 145855 | 165號12 | $\because$ |
| 19 5 <br> 19  | 21． 73 | 225756 | － 09 | 25876 | 5039 | 65850 | ${ }_{5}^{5} 19$ | 11 322 | i3 139 | 15359 | 172 |  |
| 19916 | 211129 | $\begin{array}{lll}23 & 159\end{array}$ | － 48 | 3832 |  | $7{ }^{7} \quad 258$ | 958 | 11.718 | 13535 | 待 749 | 1765 | $\begin{aligned} & \mathrm{\theta} \\ & 9 \end{aligned}$ |
| 19 93：3 | 2i： 5 | $23 \quad 548$ | －E ${ }^{1}$ | $\begin{array}{lll}3 & 6 & 19\end{array}$ | 5432 | 7649 | 98 | 111915 | 13932 | 151145 | 17102 |  |
| 1917 | 211922 | $23{ }^{2} 846$ | 11759 | 31016 | 51229 | 71046 | 8959 | 119512 | 131925 | 151542 | 17935 | 10 |
| 3929 | 21519 | 23 13 42 | 11558 | 1\％412 | 51625 | $7 \mathrm{H}+42$ | 9165 | 1115 | 171725 | 151538 | 171755 |  |
| 1925 | 212715 | 231739 | 11952 | $31 E$ | 52023 | 71889 | 92052 | 1127 | 132122 | 1523 等 | 172152 | $12$ |
| 192854 | $21{ }^{1} 112$ | 22.85 | － 23 梅 | 3235 | 52419 | 72235 | 925 | 11272 | ¢3 25 ： 8 | 1527 31 | 172548 | $13$ |
| 19.1255 | 21354 | 212532 | 12745 | 3268 | 5 5 515 | 72631 |  | 113088 | 132915 | 15 3128 | 172945 | $\begin{aligned} & 14 \\ & 15 \end{aligned}$ |
| ：9 36 52 | 21395 | 2329 | － 3148 | 32958 | 53212 | 73028 | 9324 | 1： 345 | 953318 | 15 j5 24 | 1733 | 15 |
| 19.818 A5 | $22^{29}+3{ }^{2}$ | 233.535 | － 35 | 3 3355 | 5348 | 73495 | \％ 56 | i1 3的 5 | 12376 | 753921 | 173738 | 17 |
| $19+45$ | 214658 | 233722 | ！ 3835 | 33751 | ${ }_{5}^{5} 405$ | $7{ }_{7}^{7}$ 法 31 | 94035 | 11.52 ce | 等 45 | 154318 | 17413.4 |  |
| 954 418 | 215055 | 23－4118 |  | 3 3！ 4 4 | $5{ }_{5} 54.418$ | 74216 74515 |  | 17 1164 11 16 | 13 34.4 | 154714 | 17 97 7 4 | $\begin{aligned} & 18 \\ & 19 \end{aligned}$ |
| 19595 |  |  | 14728 15925 | 34545 349 | 54 5 5 5 5 | $\begin{array}{llll}7 & 46 \\ 7 & 15 \\ 7 & 11\end{array}$ | ¢ 482 |  | 1346 | 15517 | 177827 | 19 |
| 20.31 |  | 23338 | ＋5521 | 35338 | 55551 | 7548 | G Se 21 | 15 5a 34 | 13 S6 51 | 1559 | $1757 \frac{19}{29}$ | 1 |
| 20 4 招 | 72 ¢ 41 | 23574 | 1598 | 337 ］s | 55948 | 7584 | 10017 | 19 ${ }^{12}$ | 14， 647 | 1630 | i8 117 | 23 |
| 20.634 | 22103 c | 01 ： | 2384 | 4131 | 63.44 | R 29 | 10 4 14 | 12.127 | 7： 4.4 | 16.657 | 38514 | 23 |
| 20：12 |  | 9.559 | 2 711 | ${ }^{4} 527$ | ${ }^{8} 741$ | $\begin{array}{lll}E & 5.57\end{array}$ | 10 Et |  | 148840 |  | 18 910 | $\begin{aligned} & 24 \\ & 25 \end{aligned}$ |
| $\begin{aligned} & 201687 \\ & 2020 \end{aligned}$ | $\left\lvert\, \begin{array}{lll} 22 & 18 & 11 \\ 2 \% & 22 & 27 \end{array}\right.$ | O－8 01254 | $\begin{array}{llll} 2 & 11 & 7 \\ 2 & 15 & 4 \end{array}$ | $\begin{array}{r} 924 \\ 4 \\ 43 \end{array}$ | 61137 61534 | $\begin{array}{lll}8 & 9 & 54 \\ 8 & 15\end{array}$ | 70 12 7 <br> 10 16 4 | $\begin{array}{lll} 12 & 13 & 20 \\ 12 & 78 & 1 ? \end{array}$ |  | 16 14 56 <br> 16 18  <br> 6 47  | 1913 13 | $\begin{aligned} & 25 \\ & 26 \\ & \hline \end{aligned}$ |
| $\begin{array}{lll} 20 & 20 & 14 \\ 20 & 24 & 11 \end{array}$ | $\begin{array}{ccc} 22 & 22 & 27 \\ 22 & 24 & 27 \end{array}$ | 01259 ¢ 1687 | $\begin{array}{lll} 215 \\ 2 & 19 & 0 \end{array}$ | $\begin{array}{ll}4 & 13 \\ \text { E } 17 \\ 17 \\ 17\end{array}$ | 61534 61930 | 86 12 5 <br> 8 17 4 | 10164 | 127817 | 14 $1+2033$ $1+2030$ | 16 18 <br> 16 22 <br> 17  | $\begin{array}{lll} 18: 7 \\ 16 & 3 \\ \hline \end{array}$ | $\frac{2 t}{27}$ |
| $20 \leq 8$ ？ | 223020 | 02044 | 22257 | 4 2112 | 42515 | ¢ 144 | 102957 | 122610 | 142427 | 76 22.5 | 1824 55 | 28 |
| 30354 |  | 02748 | 2364 | 42510 | 62723 | 62540 | 102753 | 12306 | 142825 | 153036 | 18285 | 29 |
| 20360 |  | 0 0 07 | 2 y 50 | 4 | 63820 | 6 2937 | 103950 | $1 \geq 34$ | 143229 | 16．34 39 | 183250 | 30 |
| 20395 |  | 03233 |  | 431 |  | 63333 |  |  | 143616 |  | 18 | 31 |
| $19 \%$ | Fobs． | Has． |  | 193\％ |  |  | Aus |  | De： | dav． | － | 96 |
| 984043 | 204256 | 223716 | 03929 | 23746 | ＊ 3959 | 63856 | 84019 | 104242 | 12 4059 | $14 \div 112$ | 16493 | 1 |
| 15＋ 4 年 | 2044 33 | 22 $3^{13}$ | 04120 | 24142 | 4455 | 54212 | $8+425$ | 10 2e 35 | $12+455$ | 14 44 ${ }^{4}$ | 164525 | 2 |
| 16 4 ¢ 36 | 2050 保 | 22＜59 | 04722 | 24539 | 44722 | 646 | E 4 ［ 22 | 105035 | 124852 | 135 | 16 ¢ 42 | 1 |
| 185232 | 20.5446 | 22．称 6 | $05: 19$ | 24936 | 458 | － 505 | 8 ¢ 29 | 105232 | 12 52 \％ 4 | i4 55 | 10 53 | 4 |
| 185629 | 205842 | 2253 | 05515 | 25352 | 45545 | 254 -5.79 | 85615 | 105828 | 125645 | 145 | 165715 | S |
| 19026 | 21235 | 275058 | 05912 | $\frac{2575}{3}$ | 459 5 5 | ¢ 57575 | 95 |  |  |  | 17 i 18 | 7 |
| 18 7 72 <br> 18 88  <br> 18 15  | 21 6 35 <br> 11 10 3 <br> 1   | 23 0 <br> 25 5 <br> 58  | 13 1 1 | 3 1 <br> 3 25 <br> 3 5 | 5 3 388 <br> 5 7 35 <br> 5   | 7 1 55 <br> 7 5 5 |  | 111 61022 |  | 15 45 | 17 5 8 <br> 17   <br> 17 5  | 8 |
| 19.1215 | $21+28$ | 23 6：8 | 1112 | 3 9 ： | $5193 \%$ | $7{ }^{7} 9.98$ | $88^{2} 12$ | 1115：5 | 131231 | 15 if 44 | 1713 | 0 |
| 191612 | 241825 | 231345 | 1 4458 | 31315 | 51528 | $713=5$ | 915 洼 | 111819 | 1：162日 | 15 1848 | 171658 |  |
| 1920 | 21722 | 231642 | $\cdots 1855$ | $\pm 1711$ | 51925 | $717 \%$ | \％ 48 | $\begin{array}{ll}11 & 22 \\ 1128 \\ 18\end{array}$ | 13202.5 | 152238 | 172054 | 11 |
| 10245 | 212618 | 232036 | 12251 3 1 | 3 31 <br> 3 25 | 55 |  |  | 11 11 11 30 | 13 | 152634 15 1505 | 172459 <br> 17 <br> 184 | $1 \frac{1}{1}$ |
| 19 28 <br> 19 1 <br> 19 5 |  | 25 34 |  | $\begin{array}{llll}3 & 25 & 4 \\ 3 & 25 & 1\end{array}$ | 5 5 5 5 5 1118 | 72535 <br> 2531 | 9 9 9 31 | 11300 |  | 15 15 15 3 |  | 14 |
| 493555 | 动部 g | 253228 | 13.414 | 3 1258 | ${ }_{5} 3511$ | 7538 | ${ }_{5} 9351$ | 113954 | $13 \geq 17$ | 153824 | 173640 | 15 |
| 193951 | $21+2$ 4 | 253624 | 1383 | 3 3654 | 5397 | 73724 | \％ 2937 | 711251 | 13 \％ 0 | $15+220$ | 174037 | 16 |
| 19.3048 |  | 23 4 21 | ¢ 42 2．5 | － 4651 | ${ }_{5}^{5} 4$ | ？ 7121 | 94334 | 11.4547 | 13 44 ${ }^{1}$ | 158617 | 174434 |  |
| $\begin{array}{ll}19 & 47 \\ 19 & 49 \\ 19\end{array}$ | $\begin{array}{lll}11 & 49 & 57 \\ 31 & =3 \\ 5\end{array}$ | 23 44 47 | $\begin{array}{ll}7 \\ 7 & 16 \\ 9 & 39 \\ 7 & 59\end{array}$ | 3 4449 | $\begin{array}{llll}5 & 4 \\ 5 & 50 & 7 \\ 5 & 5\end{array}$ |  | 9.17 30 <br> 851  | 11 11 115 519 | 113 48  <br> 13 51 5 | 155013 | 174830 | 18 |
| 19 19 19 19 515 |  | 23 481＊ | $150 \geq 7$ 15024 |  | 5 5 5 5 5 | 7 <br> 7 <br> 7 5914 | ¢ 5128 | $\begin{array}{lllll}11 & 5 & 40 \\ 11 & 57 & 17\end{array}$ | 135157 12 125 515 5 | 15 15497 1598 | 175227 1756 | 1980 |
| 1955 | 22278 | 2357 | － 5820 | 3 54577 | 55850 | 7577 | \％ 5820 | $\begin{array}{llll}11 & 12 & 17 \\ 12 & 3\end{array}$ | （13 5950 | 15 <br> 1628 <br> 16 <br> 18 | 175623 18 18 | 2.1 |
| 20331 | 22544 | 0 0 0 | 2217 | 4033 | 5247 | 8 \％ | 10317 | 12.530 | 14 3 絡 | 供 6 | 18416 | 22 |
| 20.727 | 22.590 | 040 | $2{ }^{2} 613$ | 4430 | ${ }^{6}+53$ | $\begin{array}{llll}8 & 5 & 0 \\ 0 & 8 & 5\end{array}$ | 10713 | 1298 | 14.743 | 16.956 | 18 \％ 13 | 23 |
| 201123 | 221317 | 0.757 | 21010 | 4817 | －10 20 | 8 | 104110 | 121323 | 1417  <br> 14 17 <br> 14 50 <br> 16  | $16: 353$ | 18.210 |  |
|  | 221793 | 09153 0 0 |  | 4 4 4 4 128 | ¢14．36 |  | 10 15 <br> 10 15 <br>   | 12：7 |  | 16 161748 | 18165 | 25 |
| $\begin{array}{llll}20 & 19 & 17 \\ 20 & 12 & 13\end{array}$ | $22: 130$ 22 25 26 | （1） 015 | 218 2 2 22 | 41620 $420: 6$ | 183 62230 | E 14 5 2 | 10 10 | ：12916 | $\begin{array}{llll}14 & 19 & 33 \\ 1+23 & 23 & \\ 7 & 29\end{array}$ | $\begin{array}{llll}15 & 21 & 48 \\ 15 & 25 & 4\end{array}$ |  | 26 27 |
| 202293 | 222423 | 02143 | $2{ }^{2} 25$ | 420 +2413 | 65626 | 8 | 102656 | 12209 | 142726 | 16， 2948 | 188 18 | 28 |
| 2035 | 223519 | C－2740 | 23653 | 4289 | 63023 | 92840 | 103057 | 123 | 143122 | 163336 | 18.1952 | 29 |
| 20353 |  | 03134 | $4{ }^{4}$ | 432 | 15 | 83236 | 103445 | 27 | 14．3519 | 163732 | 183549 | 30 |
| 203858 |  | 0353 |  | 436 |  | 8353 | 103846 |  | 1439：5 |  | 183945 | 31 |

Since it is impossible here to give tables of houses for every degree of latitude, the following are examples of tables giving ascendants for anyone born at any time on or near the latitudes of London and New York.
You took up in the S.T. column the figure nearest to your S.T. at birth, and find its corresponding ascendant in the next column.


Table of Houses for London. Latitude $51^{\circ} 32^{\prime} \mathrm{N}$

| Sidereal Tirrie |  | Sidereal Time. | Ascen | Sidereal Time. | Absen | Sudereal Time. | Ascen | Sidereal Time. | Ascen | Sidereal Time | Ascen |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| H. M. 5. | \% | H. M. 5. | - 4. | H. M. S. |  | H. M. S. |  | H. M. 5. |  | H. ${ }^{5}$ | - |
| 000 | $26 \quad 36$ | $\begin{array}{llll}3 & 51 & 15\end{array}$ | 721 | B 845 | $22 \quad 40$ | 1200 |  | 155115 |  | 20 \& 45 | 245 |
| 0340 | 2717 | 35525 | 85 | 61254 | 2124 | 12340 | 44 | 155525 | 2812 | 201254 | 49 |
| 0720 | 2756 | 35935 | 849 | $8: 7$ | 247 | 42720 | + 45 | 155935 | $0=11$ | 20173 | 532 |
| 0110 | $28 \quad 42$ | 4348 | 933 | $8211:$ | 2450 | 42110 | \% 26 | 16348 | 142 | 2021 11 | $6 \quad 53$ |
| 01447 | 2917 | 480 | 1017 | 82519 | $25 \quad 34$ | 121441 | 67 | 1680 | $3 \quad 16$ | 202519 | 812 |
| 01821 | 295 | 41213 | 1\% 2 | 82926 | 26 : 6 | 121821 | 648 | 161213 | 453 | 202926 | 927 |
| 0272 | O.1.34 | 41626 | 1146 | 83331 | 271 | 1222 | 729 | 16 16 25 | 632 | 2033 3: | 1043 |
| 02542 | 114 | 47010 | 1230 | 83737 | 27 44 | 122542 | E 10 | 162040 | $8 \quad 13$ | 203737 | $\pm 15$ |
| 02923 | 155 | 42455 | 1315 | 84141 | $28 \quad 26$ | 122923 | 851 | 162455 | $9 \quad 57$ | 204141 | 139 |
| 0334 | 233 | 42910 | 140 |  | 298 | 12331 | 933 | 16 2910 | 1144 | 20 <3 45 | 1418 |
| 03645 | 314 | 43326 | 14.45 | 8 40 48 | 2950 | 123645 | $10 \quad 15$ | 163326 | $13 \quad 34$ | 204948 | 1525 |
| (n) 4026 | 3.54 | 43742 | 1530 | 85351 | 07.32 | 124026 | 1057 | 163742 | 1526 | 205351 | 1837 |
| 0418 | 133 | 44159 | $16 \quad 15$ | 85752 | 115 | 12 448 | 1140 | 154159 | 1720 | 205752 | 1739 |
| 04750 | 512 | 44516 | 170 | 9 ¢ 53 | 158 | 124750 | 1222 | 164616 | 19 18 | 21153 | 18 \$4 |
| 05132 | 532 | - 50 34 | $17 \quad 45$ | $9 \quad 553$ | 239 | 175132 | 134 | $\$ 65034$ | 2122 | 2155 | $19 \quad 48$ |
| 0 55 14 | 630 | 45452 | 1830 | 9553 | 3 24 | 125514 | 1347 | 165452 | 2329 | $21 \quad 93$ | $20 \quad 51$ |
| 05857 | 78 | 45910 | 1916 | 91352 | 4 3 | 125857 | 1430 | 1659 iC | 2536 | 211352 | 2153 |
| 1240 | 750 | $5 \quad 329$ | 203 | 91750 | 4 44 | 13240 | 1514 | 17329 | 2746 | 211750 | 2253 |
| 1623 | 830 | $5 \quad 749$ | 20 49 | 92947 | 526 | 13623 | 1559 | 17749 | $0 \times 0$ | 212147 | 2352 |
| 1107 | 99 | 5129 | 2135 | 92544 | 67 | 13107 | 1644 | 17129 | 219 | 212544 | 2451 |
| 11351 | 940 | $\begin{array}{llll}5 & 16 & 29\end{array}$ | 2220 | 92940 | $6 \quad 48$ | 131351 | 1729 | 171629 | 440 | 212940 | 2548 |
| 11735 | 1028 | 52049 | 236 | 93335 | 729 | 131735 | 18 14 | 172049 | 72 | 213335 | 264 |
| 12120 | 118 | 5.359 | 2353 | 93729 | 89 | 132120 | 190 | 17259 | 926 | 213729 | 2740 |
| 125 6 | 11 4 | 52930 | 2437 | 94123 | 850 | 13256 | 1945 | 172930 | 1154 | 214123 | 2834 |
| 12852 | 1228 | 513319 | $25 \quad 23$ | 94516 | 931 | 132 c 52 | 20.31 | 173551 | 1424 | 214516 | 2989 |
| 12238 | 13 8 | 5 38 12 | 26 \% | 949 | 1011 | 13 3238 | 2198 | $\$ 73812$ | 170 | 21499 | 0522 |
| 13625 | 1348 | 342316 | $26 \quad 55$ | 9531 | 1051 | 13 3625 | 126 | 174234 | 1933 | 21531 | 115 |
| 14012 | $14 \quad 28$ | 54655 | $27 \quad 41$ | 95657 | 1132 | 134097 | 2254 | 174655 | 226 | 215657 | 27 |
| 1 44 0 | 158 | 5 Sy 17 | $28 \quad 27$ | 10 0-3 | $12 \quad 12$ | 13440 | 23 42 | 175117 | 2440 | 22043 | 257 |
| 14748 | 1548 | 55538 | 2913 | 10433 | 1253 | 13.4748 | 2431 | 175538 | 2740 | 22433 | 348 |
| 75137 | 1628 | 600 | $30 \quad 0$ | 10823 | 1333 | 135137 | $25 \quad 20$ | 1800 | 30 0 | $\begin{array}{llll}22 & 8 & 23\end{array}$ | 438 |
| 15527 | 178 | 6422 | $0-47$ | 101212 | 1413 | 135527 | $26 \quad 10$ | 18 - 22 | $2^{\text {\% }} 39$ | 221212 | 5 28 |
| $\begin{array}{llll}1 & 59 & 17\end{array}$ | 17 48 | $6 \quad 343$ | 137 | 10160 | 1453 | 135917 | $37 \quad 2$ | $18 \quad 343$ | 519 | 27160 | 617 |
| 238 | 1828 | 613 ? | 219 | 101848 | 1533 | 1438 | 2753 | 18 i3 5 | 755 | 221948 | 75 |
| 2650 | 19 \$ | $\begin{array}{lll}6 & 1726\end{array}$ | 35 | 102335 | 1613 | $14 \leqslant 59$ | $28 \quad 45$ | 181726 | 1029 | 222335 | 753 |
| 21051 | $19+9$ | 62148 | 3 5: | 102722 | 1652 | 141051 | 2936 | 182148 | 132 | 222722 | 842 |
| 21444 | 20 29 | 6 26 9 | * 37 | 10 9 8 | $17 \quad 32$ | 1414 144 | O 29 | 78369 | $15 \quad 36$ | 27318 | 929 |
| $\begin{array}{llll}2 & 18 & 37\end{array}$ | 2110 | 63030 | 523 | 103454 | 1813 | $\begin{array}{lllll}14 & 18 & 37\end{array}$ | 123 | 183030 | 18 6 | 223454 | 10 15 |
| 2 22 17 | 2151 | 6345 | 69 | 103840 | 1852 | 142311 | 216 | 183451 | 2034 | 223840 | 112 |
| 22025 | $22 \quad 22$ | 63911 | 655 | $10 \pm 225$ | 1931 | 142625 | 314 | 183011 | $22 \quad 59$ | 224225 | 1147 |
| 23020 | 2314 | 64338 | $7 \quad 40$ | $1046 \quad 9$ | $301:$ | 143020 | 411 | 18435 | $25 \quad 22$ | 2746 | 12. 3 |
| 23416 | 2355 | 64751 | 826 | 104953 | 2030 | 143416 | 59 | 184759 | 2742 | 224953 | $13^{*} 16$ |
| 23818 | 2436 | 65211 | 912 | 105337 | 2130 | 143813 | 67 | 185211 | 2958 | 225337 | 141 |
| 24210 | 2517 | $\bigcirc 5631$ | 958 | 105720 | 22.9 | 144210 | 76 | 183631 | 2013 | 225720 | $14 \quad 45$ |
| 2468 | $25 \quad 58$ | 7050 | $10 \quad 43$ | 1113 | 2249 | 14468 | 85 | 17050 | 424 | 2313 | 15 28 |
| $250 \quad 7$ | $26 \quad 40$ | 758 | 1128 | 11446 | 2328 | 1 - 507 | 98 | 195 日 | ¢ 30 | 23 4 46 | 16 il |
| $\begin{array}{llll}2 & 54 & 7\end{array}$ | $27 \quad 22$ | 7926 | 1214 | 11 838 | 248 | 14547 | 1011 | 19926 | 836 | 23828 | $16 \quad 54$ |
| 2587 | 28 4 | 71344 | 1259 | 11 $\$ 10$ | 24 47 | 14 5 \% 7 | $11+5$ | 191344 | 1040 | 271210 | 1737 |
| $\begin{array}{lll}3 & 2 & 8\end{array}$ | $28 \quad 46$ | 7181 | 1345 | 111552 | 25 27 | 1528 | 1220 | 19181 | 1239 | 2j 1552 | 1820 |
| $3 \quad 69$ | 2928 | $722: 18$ | i+ 30 | 711934 | $26 \quad 6$ | 1569 | 1327 | 1928 16 | 1135 | 231934 | 19 |
| 31012 | 0 m 12 | 72634 | $45 \quad 15$ | 112315 | $26 \quad 45$ | $1510: 2$ | 1435 | 192634 | 1628 | 232315 | 1945 |
| 31415 | 054 | 73050 | 760 | 112556 | $27 \quad 25$ | i5 1415 | 1543 | 193030 | \$8 17 | 23 2650 | 2026 |
| 31819 | $\pm 36$ | 735 | 1615 | 113037 | 285 | 151818 | 1652 | 19355 | $20 \quad 3$ | 133037 | 21.8 |
| 32223 | 220 | 73920 | \% 30 | 115418 | $28 \quad 44$ | 152223 | 183 | 193920 | $\begin{array}{ll}21 & 48\end{array}$ | 233418 | 2150 |
| $\begin{array}{llll}3 & 26 & 29 \\ 3 & 30 & 75\end{array}$ | $3 \quad 2$ | 74334 | 18 | 11 3758 | 29.24 | 152629 | 1916 | 194334 | $23 \quad 29$ | 233758 | 2231 |
| 3 30 35 | $3 \quad 45$ | 74747 | \$8 59 | 114139 | 0. 3 | 153035 | 2032 | $1947+7$ | 259 | 234139 | 2312 |
| 33441 | 428 | 7520 | 19 43 | 114519 | 043 | 15.3411 | 2148 | 19520 | 2645 | 234519 | 2353 |
| 3 38 <br> 3 42 | $\begin{array}{ll}5 & 11 \\ 5 & 5\end{array}$ | $\begin{array}{ll}7 & 56 \\ 8 & 12\end{array}$ | $20 \quad 27$ | 11.490 | 123 | 152849 | 238 | 195612 | $28 \quad 18$ | 23490 | 2432 |
| $\begin{array}{rrr}3 & 42 & 57 \\ 3 & 47 & 6\end{array}$ | $\begin{array}{ll}5 & 54 \\ 6 & 38\end{array}$ | $\begin{array}{lll}8 & 0 & 24 \\ 8 & 4 & 35\end{array}$ | 219 | $\begin{array}{lll}11 & 52 & 40 \\ 11 & 56 & 20\end{array}$ | $2 \quad 3$ | $\begin{array}{llll}15 & 47 & 57\end{array}$ | 2429 | $20 \quad 024$ | 29.49 | 235240 | $25 \quad 15$ |
| 3 47 6 <br>  58 15 | $\begin{array}{r}6 \\ 6 \\ 7 \\ \hline\end{array}$ | $\begin{array}{lll}8 & 4 & 35 \\ B & 8 & 45\end{array}$ | 21 <br> 27 <br> 20 | $\begin{array}{r}11 \\ 12 \\ \hline 20\end{array}$ | $2 \quad 43$ | $\begin{array}{llll}15 & 47 & 6 \\ 15 & 51\end{array}$ | $25 \quad 59$ | 20435 | 1 219 | 235620 | 2556 |
| $\underline{3815}$ | 721 | $B$ \& 45 | 2740 | \% 200 | $3 \quad 23$ | $15 \$ 115$ | 27 is | 20845 | 245 | 2400 | 2636 |



Table of Houses for New York．Laticude $40^{\circ} 43^{\circ} \mathrm{N}$

| Sideres！ Tinte | Ascen | Sidereal Time． | Asten | sidereal Time． | Arcem | Sidercal Time． | Atcen | Sidereal Tirrie． | Abrent | Sicercal T．ri4 | Ascem |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| H．P．S． |  |  | － $5^{4}$ | H．Ms | －$=$ | HM S |  | H．M S |  | 1－1．12．5． |  |
| 000 | 1853 | 35115 | 432 | 8645 | $25 \quad 28$ | 1200 |  | 1551：5 | 9 B | 20 E 45 | $20 \quad 52$ |
| － 340 | 1938 | 35525 | $5 \quad 22$ | 9 9254 | $26 \quad 17$ | 12340 | 3152 | 155525 | $103 t$ | 20.1254 | 22 14 |
| 0720 | $20 \quad 23$ | 35936 | 610 | 8173 | 275 | 11720 | 1237 | 155936 | 115 | 2017 | 2335 |
| 0710 | $21: 2$ | 4346 | 7 C | 82111 | 3754 | 12 il 0 | 1319 | 16 16 48 | 1123 | 202111 | 2455 |
| 01441 | ㄹ． 55 | 480 | 746 | 82519 | 2843 | 121441 | 147 | 1670 | 1450 | 202519 | 26 i4 |
| 03821 | 2240 | 41213 | © 40 | 82526 | 2931 | 12 1日 29 | 1457 | $16 \quad 12 \quad 13$ | 1617 | 202926 | 2731 |
| 0223 | 23 34 | \＃ 4626 | 930 | 63331 | $0 \Gamma_{6} 26$ | 1222 | 15 38 |  | 1750 | 2033 价 | 2846 |
| 02542 | 24 | 420.40 | 10 19 | 63737 | $1 E$ | $1225 \leqslant 2$ | 1623 | 102040 | 1922 | 203737 | 0 ［ 3 |
| （2）293 | 2454 | ＋24 55 | 1110 | （4） 1141 | 156 | 122923 | 1717 | $1624 t 5$ | 2056 | 204141 | 117 |
| 0334 | $25 \quad 37$ | 42910 | 120 | $8 \cdot 4545$ | 2 4j | 12334 | 1758 | 162910 | 2730 | $20+5$ 4 | 229 |
| 03645 | 2622 | 43326 | 1251 | 81848 | 331 |  | $18+5$ | 163326 | 247 | 20 4\％ 4 | 341 |
| $0<26$ | 275 | 43742 | 1341 | 85351 | 116 | 1240 26 | 1932 | 163742 | 254 | 205351 | 451 |
| 0446 | 27 50 | 41159 | 1132 | 8572 | 56 | 12 4＊ 0 | 2020 | $16+159$ | 2723 | 205752 | 61 |
| 04750 | 2833 | 4.616 | 1525 | 9153 | $5 \quad 53$ | ：2 4750 | 21.8 | 164615 | 294 | 27 － 53 | 7 \％ |
| 05132 | 1918 | 45034 | 16 14 | 9553 | $6 \quad 40$ | 025132 | 21 57 | 16505034 | 0－4 45 | 24553 | 816 |
| $05 \pm 14$ | 043 | 15452 | 175 | 9953 | $\overline{7} \quad 27$ | 175514 | 2243 | 1 y ¢ 42 | 227 | 23 953 | 923 |
| a 5E 57 | 046 | 45810 | 1750 | 81352 | 8 ：3 | 125857 | 2331 | 165750 | 411 | 211852 | 1030 |
| $124 B$ | 131 | 5329 | 1847 | 51750 | $7{ }^{7} 0$ | $15 \pm 40$ | 2422 | 17329 | i5 56 | 291750 | 1133 |
| \％ 623 | 2 14 | 574 | 1939 | 92147 | 946 | $1] \quad 523$ | 25 11 | 17748 | 743 | 212147 | 1237 |
| 1107 | 258 | 5 i2 9 | 2030 | 92544 | $10 \quad 33$ | 13 107 | 26.1 | 1） 129 | 930 | 217544 | 13 41 |
| 11354 | $3 \quad 43$ | 51629 | 21.72 | 92940 | 11 15 | \＄3 13 54 | 2651 | 174629 | 178 | 212910 | 1443 |
| 11735 | 427 | 52049 | 22 13 | $9 \pm 35$ | 124 | 1717 3士 | 27 40 | 172049 | 13 8 | 2.15335 | 1544 |
| 12120 | 512 | 5259 | 235 | 93729 | 1250 | 132120 | 38 32 | 17259 | 14 57 | 213729 | 16 45 |
| 1256 | 556 | 52930 | 2357 | 94123 | 1336 | 13256 | 2922 | 172930 | 16 18 | 2.1493 | 1745 |
| 12 E 5 | 640 | 5 7351 | 2449 | 앋 16 | 1421 | 192852 | ［＊＊14 | 973321 | 1641 | 274516 | 184 |
| 13238 | $7 \quad 35$ | 5 3812 | 2540 | ce 496 | 157 | 133238 | 17 | 173812 | 23） 3 | 2149 | 1 c 42 |
| 13625 | \％${ }^{\text {a }}$ | 5 52． 34 | 2632 | 9531 | 7552 | 133625 | 20 | 874234 | 2215 | 2159 | 2040 |
| $140: 2$ | 853 | $\begin{array}{llll}5 & 16 & 55\end{array}$ | $27 \quad 25$ | 95652 | 16 38 | 134012 | $\geq 52$ | 17 16 55 | 2419 | 215653 | 2137 |
| 1440 | 938 | 55117 | 2816 | 10043 | 1722 | 15440 | 546 | 175917 | $26 \quad 12$ | 22043 | 2231 |
| 14748 | 1024 | 55539 | 298 | 10437 | 187 | 134748 | 447 | 175518 | 28 7 | 22 － 33 | 2330 |
| 1 5t 37 | 118 | \％0 0 | 30.0 | $10 \quad 123$ | 1852 | $\begin{array}{lllll}3 & 51 & 37\end{array}$ | 5 35 | 1800 | 300 | 22873 | 21 25 |
| 15527 | 1153 | 6 － 22 | － 52 | 101212 | 1936 | 135527 | 430 | $18 \leqslant 22$ | i 53 | 211212 | 2519 |
| 15917 | 1238 | 6 E 5 | 1 运烍 | 10 750 | $2 \mathrm{~F} \quad 22$ | 155917 | $7 \quad 17$ | 18 止 40 | 148 | 22 做 0 | 26 14 |
| 2.38 | 1322 | 6135 | 735 | 109948 | 217 | 14 \％ | 823 | 18135 | 549 | 22 ＊9 4 | 27 E |
| 2659 | 148 | 61728 | 328 | 102335 | 2151 | 14659 | 920 | 1日：726 | 735 | 272335 | 2 L |
| 2105 | 1453 | 62148 | 420 | 10127 | $22 \quad 35$ | 14145 | 1018 | 1821 18 | 927 | 222727 | 2853 |
| 21444 | 4539 | 6209 | 511 | 1037 | 2220 | 14144 | 11.16 | $182{ }^{6}$ | I1 19 | 2\％${ }^{2} 18$ | 2946 |
| 218 | 1634 | 63030 | 63 | 103344 | 244 | 141637 | 1215 | 1日 7030 | 1312 | 22 3454 | 04137 |
| 22239 | 1710 | 63451 | 655 | 103850 | 24 48 | 142734 | 1315 | 383451 | 153 | 223840 | 1 28 |
| 22625 | 1756 | 63911 | 747 | 104225 | $25 \quad 33$ | 142625 | 14.9 | 183911 | 1652 | $22 \sqrt{2} 25$ | 220 |
| 23020 | $16 \quad 41$ | 6.4311 | 838 | $10<5$ | 2517 | 143025 | 1517 | $18 \div 331$ | 1842 | 27 469 | 3 \％ |
| 23416 | 1927 | 64759 | 930 | 104957 | $27 \quad 2$ | 143416 | $16 \quad 97$ | $18 \pm 75$ | 2030 | 224953 | 359 |
| 23813 | 2011 | $652: 1$ | 1021 | 105337 | 2746 | 143813 | 1723 | 1E 5\％：1 | 2217 | 225337 | 449 |
| $\geqslant 4210$ | 210 | 6 | 1113 | 105720 | 28.79 | 14.5210 | 1627 | 1858 I！ | $24 \quad 4$ | 22.720 | 538 |
| 2468 | 394 | $7 \quad 050$ | 12 4 | 1113 | $\begin{array}{ll}39 & 14 \\ 78 & 57\end{array}$ | 1446 B | 15 301 | 19050 | 2540 | 2318 | $6 \quad 27$ |
| 2507 | 23 23 | $7 \quad 58$ | ：255 | 11446 | 29.57 | 14507 | 20.37 | 1958 | $27 \quad 33$ | 23 4 46 | $7 \quad 17$ |
| 254 | 2320 | 7.36 | 1345 | \％e 28 | $0 \cdot 42$ | 14547 | 2144 | $19 \% 20$ | 2915 | 23 \％28 | 83 |
| 2． 58 | $24 \quad 7$ | 71344 | 1437 | 111210 | 127 | 54587 | 2251 | 197344 | 0 ct 56 | 23 12 10 | $8 \quad 52$ |
| $328$ | 24 54 | 718 | 15 20 | 115552 | 210 | 1520 | 7359 | $1918 \quad 1$ | $2 \quad 17$ | 23 is 32 | 940 |
| 369 | 2542 | 72218 | $16 \quad 19$ | 111934 | 255 | 1569 | 259 | 192288 | 416 | 231934 | 1028 |
| 31012 | 3629 | 72634. | 179 | 172315 | － 38 | 151012 | 2619 | 192534 | $5 \quad 53$ | 232315 | 11 15 |
| 31415 | 2717 | 73050 | 180 | 112650 | 423 | 15 1  <br> 15 18 19 | $27 \quad 38$ | 193050 | 730 | $23265 \%$ | 12 |
| 31819 | 20.4 | $\begin{array}{lll}7 & 35 & 5\end{array}$ | 1850 | 113037 | $5{ }_{5} 5$ | 151819 | 2843 | 1935 | 94 | 233037 | 1249 |
| 32223 | 2852 | 73920 | 1941 | 113418 | 5 52 | 152223 | 7957 | 193920 | 1036 | 733418 | 13137 |
| － 2629 | $29 \quad 40$ | 7 43 <br> 47  | 2030 | 113758 | $\square$ | 152620 | － | 194334 | 4210 | 23 \％ 7178 | 1422 |
| 33035 | 0429 | 74747 | 2120 | 11.15 | $\vec{\square} 2$ | 153035 | 220 | 194747 | 1351 | 234139 | 158 |
| 33419 | 117 | 7520 | 22 11 | 114519 | 8 | 153441 | 346 | 19520 | 1510 | 231579 | $15 \quad 53$ |
| 33849 | $\pm 6$ | 75612 | 230 | 17490 | $\begin{array}{ll}8 & 18 \\ 9 & 37\end{array}$ | 153849 | $5 \quad 5$ | 195612 | 1637 | 29450 | 1641 |
| $3425 \%$ | $2 \quad 55$ | 6 0 24 <br> 0   | 23 24 20 | 115240 | 9 197 | $\begin{array}{lllll}15 & 42 & 57 \\ 15 & 47 & 6\end{array}$ | $6 \quad 25$ | 208024 | 194 | 255240 | 1723 |
| \％ 476 | $3 \quad 43$ | $\begin{array}{lll}8 & 3 & 35 \\ 0 & 8 & 45\end{array}$ | 24 25 | 115020 | 1622 | 15476 | 746 | 20.35 | $17 \quad 25$ | 23 5620 | 168 |
| 357 15 | 432 | E 845 | 25 28 | \＄200 | 117 | 1551 is | 9 达 | 20 e 45 | $20 \quad 52$ | 2400 | $18 \quad 53$ |

## A Southern Hemisphere horoscope

Horoscopes of natives born south of the equator are calculated by the same method as that used for northerners-with only two differences:

1. To compensate for the difference in sidereal time in southern latitudes, 12 hours must be added to the S.T. calculated for the time of birth.
2. Since no tables of houses are available for the Southern Hemisphere, the native's ascendant sign will be sign of the Zodiac directly opposite to that given in the tables compiled for the corresponding northern latitude. For example, $15^{\circ}$ Seorpio would be reversed to $15^{\circ}$ Taurus.

Steps for calculation

Date of birth
Place
Latitude
Longitude
Local time
G.M.T.
$\qquad$
S.T. at Greenwich at noon on January 10

+ acceleration on interval at the rate of 10 seconds per hour

Longitude $145^{\circ} \times 4$
Local S.T. at birth
Add 12 hours for latitude $37^{\circ} 58^{\prime} \mathrm{S}$.

Subtract 24 (to bring the figure within the 24 -hour span of a sidereal day)

| 19 | 16 | 27 |
| ---: | ---: | ---: |
| 5 |  |  |

January 10, 1939
Melbourne, Australia
$37^{\circ} 58^{\prime} \mathrm{S}$.
$145^{\circ} O^{\prime} \mathrm{E}$.
7 A.M.
5 P.M.

|  | 50 |
| :--- | :--- |
| $24 \quad 17 \quad 17$ |  |

940
$\begin{array}{lll}33 & 57 & 17\end{array}$
12
$\begin{array}{lll}45 & 57 & 17\end{array}$
24
$21 \quad 57 \quad 17$
Look this figure up in the table of houses and find the ascendant. $22^{\circ}$ Gemini; reverse sign to $22^{\circ}$ Sagittarius

## Appendix 4

Simplified ephemerides of the planets

After the ascendant and the Sun-sign, the mosi imponant astrological factors are the positions of the planels in relation to the Zodiac. For example, five planets in a sign give that sign great emphasis; or a planet occupying its "own" sign strengthens the sign's importance, By using the following simplified ephemerides. you can find the approximate positions on your birthday of mos: planeis; the tables list the Zodiac sig:ns occupied by each of seven planets during the different months of every year from 1901 to 1964. When a planet moved ou: of a sign during the month, the date of the change is given. For example, in January 1902. Mercury moved out of Capricorn into Aquarius on the 12th. (Sometimes planats appear to move backward througlt the Zodiac and are called retrograde.) The tables cannat lake into consideration specific degrees of positions: nor. for reasons of space, do they lis: the positions of the Moon (which moves into a different sign every iwo or three days) of of Pluto, which moves very slowly and has litte influence an individuals.



## Index

Page numbers in italics refer to illustrations.

Abraham, 35, 129
acceleration on interval, 245
Adam. 106. 168
Adams, Evangeline. 10.46. 47.49.53.63. 66. 196-8. 199 ; trial. 196. 199
Addison, Joseph, 283
advertising, 232, 237
Aegeus, king of Azhens, 179
Agrippa, Henry Cornelius. 14, 35, 280
Augustus, Roman emperor, 122, 122
Akhenaton, king of Egypt, 46
Alamein, battle of, 218
Alberius Magnus, 35, 58, 140, 741,224
Albumasar. 35, 136, 148
alchemy, 18, 42, 49, 137, 138, 158
almanacs, 27-8, 29, 32,178-80, 180.193, 276.277

American Federation of Astrologers, 198. 226, 228, 233
America, see U.S.A.
amulets. 21. 62, 128
Anderson, Karl, 186
angles. 23. 23. 247
Aphorel (F. W. Lacey). 191
Apuleius. sphere of, 136,136
Aquarius, 63, 66, 100-03, 183, 185, 293 :
Aquarian age. 100. 101, 183
Arabianastrology, 135-6, 176, 177
Arden, Adrienne, 205
Aries, 10, 40,57,63, 68.73.80-3.87.88, 134, 232
Aristarchus, 114
Aristotle, 70, 136, 138
Armstrong, Louis, 10, 82
Arnald of Villanova, 144
ascendant. 23. 23, 41, 79. 200, 244, 246-7. 248, 253, 254, 257, 302ff. 324
Ascoli, Ceccod', 146
Ashurbanipal, king of Assyria, 32, 110
aspects. $23,24,41,48,77.105 .223,224$. 243, 250-2, 256, 257. 258, 296-7; see also conjunction, opposition, sextile, square, trine
Assyria, 108-10
astrolabe, 30, 146, 148, 281
astrologers, fraudulent, 116,143,180. 279-80. 279
Astrologers International Lid., 234
"Astrologus," 284
astronomy and astrology, 25. 106, 110.111. 134, 144, 145, 148, 150, 152-7.168-9. 173.175.182-6. 184, 261

Ataturk, Kemal, 95
atomic bomb. 64, 195, 218
Atomic Age, horoscope of. 301
Aurelian, Roman emperor, 128
Aurelus, Marcus. Roman emperor. 128
Aziecs.30-1

Babylonia, 20, 26, 38-9, 53, 74, 106-12, 108, 109.113. 116
Bacon. Francis, 15, 25, 100, 158, 178
Bacon, Roger, 137, 140, 178
Bailey, Alice. 227
Balzac. Honoré de. 82.85
Baudelaire, Charles Pierre, 82
Barbault. André, 10, 75, 81. 82, 83, 85, 86, $87,88,89,91,93,95,96,98,99,100$.
103 ; on Freud. 193
Bardot, Brigitte, 54
Baughan, Rosa, 186, 187
Bayle, Pierre, 175
Beethoven, Ludwigvan, 96
Beigian astrological society. 233
Bender. Prof. Hans, 264
Bennett. Arnold. 85
Bergson. Henrilouis, 87
Berosus. 35.88.115
Besant. Mrs. Annie, 65, 189-90, 191
Bevis, John, 72
Bible. 111.186
Bickerstaff. Isaac, see Swift
Eismarck, Prince Otto von, 64, 88
Black Death. 273
Blake, Leonardo. 201, 202
Blavatsky, Madame H. P., 35, 65, 188-90, 188
Bonatti, Guido, 35, 142,143-4
Borgia, Cesare, 89
Bormann, Gerda, 217 ; Martin, 217
Boucher, François, 93
Bracken, Brendan, 8, 204
Brahe. Tycho. 152-5, 154
Brando, Marlon, 82
British Parliament 8, 98. 204
Brontes, 195-6
Browne. Sir Thomas, 162
Bruno, Giordano, 167
Burckhardi, Jacob, 143
Burion. Robert. 162
Builer. Samuel, 49, 283
Byron, George Gordon, Lord, 87
calendar, Austrian farmer's. 753; see also Kalendarand Compost of Shepherds
Caligula. Roman amparor. 122
Calvin, John. 276
Campanus, Johannes : table of houses, 247: house division, 250
Cenaletto. Antonio, 92
Cancer. 46.68, 86-8, 179, 292
Capricorn, 40, 49, 55, 63, 72, 74,88,98-100. 122, 293
Cardan (Girolamo Cardano), 15, 91, 275-6
Carstairs, Prof. Morris, 10
Case. John. 168, 283, 283
Castor and Pollux, 85, 117
Cato the Elder, 116
celestial equator. 39.73
Chaldea. See Babylonia
Chamberlain, Neville, 200, 201, 202

Chambers. John. 279
Charles V. Holy Roman Emperor, 278
Chaucer Geoffrey. 32, 146-8, 147.158
Chinese astralogy. 30
Choisnard. Paul. 26. 100, 264, 266
Chopin. Fiédéric. 44. 102
Christins, queen of Sweden, 96
Chistianity and astrology. 58, 101, 129 :
early Christians. 128.33 ; later. $134-55$ :
see also Inquisition
Church of Light. Los Angeles, 265
Churchill, Sir Winston. 96. 101
Cicero, Marcus Tullius, 32. 116, 118
Clark. Vernon. 26
Claudius, foman emperor, 122
Clemenceau. Georges, 86
Clementine Recognitions. 129
Cocteal. Jear, 87
codes of ethics for asirolegers, 226, 228-30
comets, 155.172-5, 173, 280. 281
conjuntion, 23. 24, 258. 287, 296 : Mercury and Venus, 53 : Jupiter and Saturn. 60, 64, 76, 150, 150, 153, 162. 281: Mercury and Salurn. 86 ; seven planeis in Libra, 138. 274.5
constellations. 70, 73, 73 : Babylonian, 106 : Egyptian, 710
Consiantinus. Sebastian. 278
Constanline, Aornan emperor, 130
Copernicus, Nicolaus, i14, 120, 151, 152, 152
correspondences. 16-8, 34, 44, 78, 108,114, $126 \cdot 8,141,186,222$
Corvino. Francisco. 277
Cosmas of Alexandria, 134.138
cosmobiology, 220, 221, 267
cosmology: Babyionian. i13; Pyihagorean. fi3: heliocentric. 114, 152; geocentric, 12i. 243
Cossa, Francesco del. 135
Coution, G. G., 143
Creation, date of, 35, 168
Culpeper. Nicholas, 167, 281-2,283
Curie, Mane, 95
cusps, 22.23. 247. 257
Cybele, 115

Dali, Salvador, 87, 87
Dante Alighieri. 86, 140-3, 142
Dark Apes, 133. 134-6
Darwin, Charles, 100
Daumier, Honore. 784
Davioson. Dr. W. M., 14
Dean. dames. $101 . j 01$
Declaretion of independence. U.S.A., 174. 300
Dee, Dr. John, 15, 26, 27, 158
Delmer. Sefion. 218
Delphic oracte. 119
Derham, Wilham. 175
Descartes, René, 158, 164
descendant, 23.41, 247
determimism, see fatalism
Dickens, Charles. 58. 64
Diocletian. Roman emperor, 130
Dionysus. 114. 115
divinatuon, 20.116,118,177,195,268: see also prediction. fortune telling
Dostoevski, Fëdor 95
Doyle. Sir Arthur Conar, 84, 86
Dryden. John. 24. 125. $172,274.283$
Dubois, Abté, 176
Dumas pere. Alexandre. 89

Ebertin, Frau Elsberk, 211
Ebertin, Rainhold, 221, 257, 267,290
eclipses, 20. 44. 110.133. 284.5, 287
ecliptic. 22, 22.39.70,73
Edict of Milan. 130
Edward VII, king of England. 287
Edward VIII, king of England (Duke of Windsor). 25, 101
egg with "comet" mark, 35, 172, 173, 284
Egypt ancient, 46, 56, 710,111.126: :9th-cemsury. 176
Einstein. Albert. 155
Eisler, Robert, 57, 74, 83, 168, 182, 247, 287
Eleazaf, Rabbi. 35
electional 3strology, 21, 30,37, ;45
elements, see iriplicities
Elizabethl, queen of England, 15.26. 27. 158
Elizabeth II, queen of England, 99, 99
Elle magazine, 232
end of the world, 18, 20, 155, 240, 241. 277.8. 281, 288 ; see also prediction

England, 10.57.57, 80, 158, 172. 199. 231, 298
Ennius, 116
ephemeris, 32. 244. 245, 248. 252. 261 : simplified ephemerides of planets, 327-43
Erasmus, 93
Etruscan divination, 179
Evelyn, John. 172
exurasensory perception (E.S.P.), 66, 222

Faculiy of Astrological Studies, London. 228-30, 231, 232
fatelism, 16, 108,116,122,132; see also free will
Federation of Eritish Astrologers, 241
Fesel, Dr., 212,214
Ficino, Marsilio, 34, 62, 146
Fire oflondon, 165, 165
Firmicus Maternus. Julius. 83. 132
Flamsteed, John, 145
Fliess, Dr. Wilhelm, 193. 795
Flood, Robert, 20
Fontenelle. Bernäd, 975.284
fortune telling, 75, 16, 20,21,110, 138.196. 198, 234, 235
Foyle, Miss Chrisiina, 207-9

France, 10, 88, 175, 176, 232, 299
Franco. General Francisco, 95
free will, 140-3, 148, 198
French Revolution. 53 : predicted. 15, 15, 176
Freud, Sigmund, 83, 193, 195
Fuscus, Arellius, 35

Gabriel (Hingson), 15. 35
Gadbury. John. 165-7, 254, 279
Gagarin, Yuri, 65
Galilei, Galileo, 100, 157, 157. 164
Galle, J. G., 183
gambling, 194, 197
Gandhi, Mohandas, 13, 93, 201
Garibaldi, Giuseppe, 88
Garnett, Richard, 86, 192-3
Gataker, Thomas, 165, 281
Gauquelin, Michel, 264
Gauric, Luc, 151
Gemini, 49, 51.63.85-6. 117. 164. 292
genethliacal astrology, 18,19,116, 244
Genuit, Hans, 258
geomancy. 177.177
George III, king of England, 86, 89
Gerbert, see Pope Sylvester
Germany, 8-10.68, 172، 176. 209-10.
218-20, 300 ; see also Nazis
Gladstone, William Ewart, 64
Gleadow. Rupert, 33, 21, 32, 34, 38,47, 51. 66, 67, 68, 76. 77. 85, 88, 91. 98, 100. 101.183,186

Goebbels. Dr., 95, 117
Goering. Hermann, 58, 95
Goethe, Johann Wollgang, 95.176, 225
Greenwich Mean Time, 242-6. 248: time zones, 245 ; see also sidereal lime
Greenwich Roval Observatory. 745
Grosseteste, Robert, 138, 141
Gustavus Adolphus, king of Sweden, 154
Gutberlet. Dr. Wilhelm, 211

Halley, 168-9; comet, 173,175
Hamburg School, 267.9
Hari, Mata, 94
Harrisson, Tom, 34, 204-5 : see also Mass Observation
Harvard University, 227
Harvey, Richard, 281
Heimsoth. Karl Günther, 211
Heindel, Max, 49, 68، 77. 227
Heliogabaius, Roman emperor, 130
HenryIV, king of France, 277
herbals, 141, 167, 281-2
Hermetic writings, 42, 43, 62, 80, 126-8, 138
Hermes Trismegistus. 35, 126-8, 138
Hersch, Prof. L. 263
Herschel. Sir William, 64, 183, 183
Hess, Rudolf, 214, 215
Heydon. Sir Christopher. 279
Himmler, 214.217

Hindu astrology, 20, 30, 33, 42, 47, 62, 106, 109.176. 189, 221, 236; see also India
history of astrology Mesopotamia, 106-11; Greece, 112-16; Egypt, 110-11 ; Rome. 116-28 : early Christian. 128.33 ; Dark Ages, 134-6: Middle Ages, 42, 62, 136-48; Renaissance, 62, 150-62:17th-18th centuries, 162-76;19th century, 176-90; 20th century, 195-237: World War II, 201-18: postwar, 218-41
Hitler, Adolf, 16, 58, 66, 201. 209, 211, 213, 214, 298 : see also World War II, Nazis
Hobbes, Thomas, 164
Hölderlin, Johann Christian. 103
Holmes, Sherlock, 84, 86
Holst, Gustav, 11
Homer, 49. 52, 53, 56
Hone, Margaret, 38, 42, 47, 57, 66, 68, 185, 228, 254. 259
Horapollo, 133
horary astrology, 19. 20
horoscope: definition, 242-4; casting، 24253.246, 248; interpretation, 253-61;
progressed, 261-2, 263: Southern
hemisphere. 326
horse racing, 197
house division, 247-50. 251
houses, 22, 22, 104, 105, 219, 247. 250 251.255. 294
houses, tables of, 248, 324-5
Hugo, Victor، 95
humors, 162, 163
Huxley, Aldous, 286
imum coeli (I.C.) 23, 23.41, 247
in Search, 14, 227, 228
India, 10. 13, 20, 30, 109, 176, 189, 240. 241,286
Inquisition, 142.144.146.169
Institute of Abstract Science, 228
Institute of Parapsychology, 264
International Congress of Astro-Science, 234. 240

Israel, 43, 235, 299
Italy, 143. 167, 232, 298
Ivan the Terrible. 91

James VI of Scotland and I of England, 76
Japanese astrology, 30.236. 239
Jayne, Charles A.. Jr., 228
Jerusalem, 17, 17
Jesus Christ, 128, 130, 146, 186, 190-1
Joffre, Marshal Joseph. 99
Johnof Bassigney. 273
John of Eschenden, 273
Jones. Ernest. 193
Jones. Marc Edmund, 21 -2, 227, 228
judicial astrology. 18, 19, 157
Jung, Cart Gustav, 26, 35, 74, 193. 220-3, 222, 224, 260-7, 266-7

Jupiter. 58-60, 96, 103, 137, 749, 253,291
Justinian, 8yzantine emperor. 49
Juvenil, 125, 274
juvenile celinquency. 240

Katendar and Compost of Shepherds. 38 , 46.42.46.50-1.55,56.58-9.60-1.91. 151.753.272

Kane, Immanuel, 99
Kepler Johannes, 34, 62-3, 86.99, 150. 154. 155-7

Katina (Theodossiou). 221
Keiser, Eliriede, 279
Koct. Dr. Walter A. 219, 247
Koestler. Arthur. 110
Korsch, Dr. Hugo. 217.2
Krati. Karl Ernst. 14. 26. 193. 209-10. 210. 212-15.260, 262-7

Lane. Edward William. 176-7
Laplace. Pierre de, 183
Lavater, Johann, JG2
legat position of astrologers, England. 178, 182 : U.S.A.. 196
Leo, 44, 66, 66. 68, 75, 88-91, 292
Leo. Alan. 15. 35. 191-2. 192.195; ;rial. 198
Leo. Bessic. 191
Leverrier, Urbain, 183. 184
Lévi, Eliphas (Alphonse Louis Constant). 178,179
Lewi. Gran! (Scorpio), 186
Libra, 21.53.93, 293
Lichenberger, Johannes. 750,150
Lilly, Milliam. 28. 35, 49.63.76, 164-5. 164. 172.175.214.276, 281

Lincoln, Abratram, 96, 101
Lind, Ingrid, 20. 38, 44, 62. 66. 68, 77. 81. 85, 88. 91. 95, 98. 100. 101. 146. 168, 183.186.224.231. 258
local sidereal time, 245
London, 17.69. 175 ; table of houses for, 324
Long, Huey. 88
Louis XI. King of France. 277
Louis XIV. king of France. 88, 91. 167. 169. 175.278

Louis XVI, king of France. 75
Lowell. Percival, 184
Luther, Martin, 150, 170
Lyndoe, Edward. 199, 204. 204, 207
magic.4 9. 62, 126-8. 181
Mallarmé. Siéphane. 99
mandala. 222
Manilius, Marcus, 32, 38, 117
Mansfield. Katherine. 93
Maotse-iung. 30
Marco Polo, 30,176
Margarer, Princess, 29
Margesson, Maud, 195-6

Marie Therese. queen to Louis XIV of
Ftance. 278
Marlowe, Christopher, 158,555
Mars. 40,55,56-8, 80, 95, 195,253, 290
Marx. Karl. 85
Mason, Zoltan, 47
Mass Observation. 204-5
Mastlin, Michael. 156
Mather Increase, 172. 280
medieval astrology. 137-8
medical astrology. 14, 21,47,49-50,52,58, 126-8. 136.151-2
Medici, Giovannide, 151 : Lorenzo de, 88. 146
Medicis, Catherine de, 139
medium coeli (M.C.), 23, 23,41, 244. 247,248
Melanchthon. Philip. 15
Melton, John, 279-80.279
Mercury, 50-3.85, 91, 137,252, 290
Mesopotamian astrology, see Babylonia
meteorological astrology, 9.30
Mézières. Philippe de, 148
Mirdle Ages. see medieval
mid-heaven, see medium coeli
Miller, Henry, 11, 288
Millon, John. 96, 120
Modern Astrology. magazine. 191. 192
Montaigne, Michelde. 158
Montefeltro. Guido de. 143
Montgomery. Field Marshal Viscount, 56. 218
Moody, T. H., 180-2
Moon, 46-50.68.83, 86.103.179.190.193. 224. 252.290

Moore, Marcia, 228
Morgan, J. P., 10.198
Morier, James, 176
Morrish, Furze. 38, 47, 60, 64, 65, 66, 68. 77. 82-3. 85, 88, 89, 32, 93, 96. 98. 100. 101-2.105. 223-4. 267
mundane astrology. 19, 20, 110, 200
Mussolinı, Eenito. 58, 89, 95. 201, 216, 218. 298

Mysore University, 228
nadi granthams. 10
Napoleon, Emperor, 43. 49, 88, 98
natal astrology, see genethliacal
Naylor, R. H., 200. 205. 205. 207
Nazis, 8. 16. 210-7, 210, 220
Nebetmeier, Felix. 210, 218
Nechepso, 35, 126
Nechepsoand Petosiris, Revelations of. 115. 120
Nectarebus, king of Egypt. 278
Nehru, Pandir Javaharlal, 287
Nelson. Horatio, Viscount, 57.96
Naptune, 66-8, 95, 182, 184, 253, 291
Nero, Roman emperor, 122
New Statesmar and Nation, 34, 205
New York, 17 ; table of houses for, 325
newspaperasirology, 32, 199. 204. 204. 207. 208, 232

Newlon, Sir Isaac, 25, 64, 150.158, 164, 166,
167-8. 281
Nietzsche, 95, 115
Nifo, Agostino, 277
Nijinsky, Vaslav. 103
Nine Hours to Rama (film), 13
North, Sir Thomas. 273-4
Nostradamus (Michel de Notre Dame). 14-15, 15, 27, 139, 176, 214, 288
numerolagy. 177, 189, 193, 194
occultism, 15,65,171.178,181
Olcot1. Colonel. 188
Old Moore's Almanac. 28
Old Moore's Monthly Messenger, 285, 257
Omarr, Sydney, 288
opposition, 23, 24, 258. 296
orb, 25
Oresme, Nicholas 35, 278
orrery, 36
Oxford. 18 ; university, 138-40,147

Paddon, Charles, 182
palmistry, 20, 186. 239
Рап. 129
"Papus," 57.58
Paracelsus, 15,46
Paris, 17
Pariridge, John, i66, 168-9
Pascal, Blaise, 224
Pasteur. Louis. 99
Pauli, Woligang. 156
Pearce, A. J. 38, 44, 52, 53, 55, 60, 63, 64, 67. 86, 98, 100-1.193. 253

People, ithe. 199, 204
Persia (ancient), see Babylonia
Peter of Padua, 144
Petosiris, 35, 126
Petronius, Graius, 122-5, 124
Petulengro, Gipsy, 32, 207, 208, 209. 221
Philo. Judaeus. 35
Philolaus of Tarentum, 113
physiognomy, 21,47,76, 81,147,162;
see also Varley
Piaf, Edith, 95
Picasso. Pajlo. 88
Picture Post, 205, 207
Pisces, 44, 47.59, 67, 68,103-05, 190, 293
Picodella Mirandola. Giovanni, 32.35, 150-1
Placidus de Tilo, table of houses, 247
planeis, 36-69, 40, 250-2, 252, 290 : symbols of, 23.290-1 ; names of, 38-9: importance in horoscope, 40-1 : retrograde. 250 : plative movement of, 250. 253;
simplifiad ephemerides of, 327-43
planetary rulersinip of rowns, 77.17-8: countries, 17.57 ; days, 18 ; Zodiac signs. 40, 7\%. 290-1
Plato. 114
Pliny the Elder, 55, 125, 133

Plutarch, 273.4
Pluto, 68-9. 95، 183-6, 184, 253. 291
Poe, Edgar Allan, 79.95
Pollexfen, George, 11
Pope John XXIII, 59, 287
Pope Sylvester (Gerbert). 136
precession of equinoxes, 72, 73-4, 103
predicion.12-15, 15,28.37.139. 201. 261, 269, 270 ff.
Proclus Diadochus. 42
progressed horoscope, 261-2, 263
propaganda, astrology in, 218, 232
prophecies, see prediction
Proust, Marcel. 87
psychology and asirology, 10,75, 77, 258.
260. 262 ; see also Freud, Jung

Prolemy, Claudius, 28, 30. 32, 38, 42, 44. $51,52,57,58,62,69,76,80,96,176-20$, 121.128

Pythagoras, 112.114; wheel of, 171
quadruplicities (qualities). 76, 255. 257
qualifications of astrologers, 228
radiation, 74,267
Raleigh, Sir Walter, 148, 273
Raman. Prof. B. V., 227
Raphael (R. C. Smith\}, 16, 17,20,35,38. $46,52,55,59,60,64,67,81,180,183$
Rav. Santha Rama. 10
Ravens Almanack. The. 276. 277
Regiomontanus, 150; house division system. 257 ; table of houses, 247
reincarnation. 189-90
Rembrandt. 87
Rheticus, Joachim, 152
Rhodes, Cecil, 96
Risioro of Arezzo, 143
Robson, V.E., 254
Rohm, Ernst, 211
Rolleston, Frances, 99. 186, 188
Rommel, Field Marshal, 218
Roosevelt, Franklin D., 65, 101, 217
Rosicfucian Fellowship, 227
Rousseau.Jean-Jacques, 87
Royal Society, 172
Rubens, Peier Paul, 88
Rudhyar, Dane, 10.21,227
Russianrevolution, 67. 301

Sabian symbols, 21-2, 227
Sagittarius, 44, 59, 63, 66, 74.96-8, 293
St. Augustine, 130-2.131
Si. Tefesa ot Avila, 82
Si. Thomas Aquinas, 32, 140
Sand. George, 82
Saturn, 16, 58, 60-4, 98, 100,137,141,183, 186. 253, 291

Savonarolua 82

Schopenhauer. Arthur, 103
Schubert. Franz. 87
Sehulie. Strathaus, Ernsi, 215
Scorpio, 40, 47,49, 57,68,75.95-6.179. 293
Scot, Michael, 60
Scotland, 17.60
Scott, Sir Walter, 177-8
Sebettendari, Rudalif Freherr von, 35, 210-11
Sepharial (Welter Gorn Old), 35, 991. 193-4. 195.197.254.290
sextite. 23. 24. 243. 258.297
Shakéspeare, Willam. 64, 158-62. 278
Shaw, George Eernard, 44, 86
Sibly, Ebenezer, 52.175.175
sidereal time, 244.6: tables of. 302-23
signs of Zodiac. see Zeciac
Sikkim, Crown Prince of. 31
Sobottendorf, Baron, see Sebottendorf
Solinus, Caius Julaus, 133
southern hemisphere, horoscopes in, 326
Spenser. Eomund. 158
Spencer. Katherine O. 196
square, 23, 24, 243, 258, 297
Stalin. Joseph. 63. 99.286
statistical investigations of astrology. 26. i 00 , 192. 223-5. 225. 262-6. 265
Sterne, Latrence, 170
Stoefler, Johann, 278
Sun, 42-6, 73, 89, 741, 224, 253, 290
Sun-sign in horoscope, 73. 79. 79. 259. 302
Swift. Jonathan, 7 66. 169
symparhy. 16-17.141, 223 : see also correspondences
Synesius of Cyrene. 132
tables of houses, 23.32, 244. 245, 248-9. $324-5$
Tacitus. Caius Cornetius, 60, 122
talismans, see amulets
Tarol cards. 13. 20. 268
Tarrutius, 273-4
Taurus, 13, 41.44.53.63, 83-5, 134.146. i47. 292
Taylor, deremv. 164
telescope, invention of, 28, 157, 757
Theosophy, 15.65,188-91. 188.189.191. 212
Thomas of Cantimpré, 143
Thurber, James. 97
Tiberius, Roman emperor. 122
Tilea, Virgil, 214
time zones, map of, 245
Tobey, Carl Payne, 228
Toledo Tables, 136, 138
Tolstoi, Leo. 51, 91
transits, 23. 262
Trevor-Roper. Hugh, 217
uine, 23. 24, 243, 258, 296
triphicities (elements). 76-7, 120, 255, 257
Tucker, W. J., 38, 44, 47, 49, 77, 93, 98

Universe. sea cosmology
Uranus, 64-6.100, 182, 885, 253. 291
U.S.A., 10, 18,21, 68, 84, 86, 88, 172, 186, 196.230-1.301

USS.R.. 300

Van Gogh. Vincent. 80
Varley, John, 76-7.86, 88.93, 95,96.98, 103. 176

Varro, Mareus, 273
Venus, 41, 53-5.83. 93, 105, 108, 253, 290
Vicior Emmanuel, kimg of Italy. 298
Victoria. queen of England. 85
Virdung. Johann, 277
Virgo. 77.44, 51.66.90-3.137.292.294
Vollrath, "Dr."Hugo, 211-12
Voltaire, 35, i75
Vorel, irys. 196. 198
Vulpecula galaxy, 8
Vulpius. Christiane. 225

Wagner, Richard. 86
Waldner, Francesco. 206, 232
Wallenstern. 57-8.154, 154
Washington, Gaorge, 85
Wiot, James. 65
Watteru, Antoine, 93
Webster, John, 160
Weigel. Erhard. 172
Whiston, William, 28
Whitman. Edward. 240, 241
Willam I, kirig of England, 298
William II. German kaıser, 194, 285, 285
"William of England," 137
Wilson. Woodrow, 64
Windsor. Duke of, see Edward VIII
Witte, Alfred. 267
Wohl, Louis de, 16, 35, 64. 77. 172, 200-1. 209-10. 214-18
World War I, 68, 194.5, 285
World War II, 64, 68. 69, 201. 202-98, 220
women and 3strology. 125. 205. 207.275, 275; fashions, 232, 234, 237
Wydenbruck, Countess, 64, 66, 83, 96, 100

Yeats, W, B. 17,132

Zadkiel(Lieni. Morrison), 28, 35, 38, 64-5. 66.178-80

Zeigier, Dr. Adrian M. 234
Zodiacsigns, 17-18, 20. 21-2, 38, 70-105. 235.237. 292.2; relationship with the body. 16, 18, 77-8, 126 ; symbols of, 22: plenetary rulers, 40, 71, 77, 290-1; origin of, 70-6 : groupings of, 76-7, 120, 255, 257
Zodiac man, 16. 18, 91, 96, 126, 126
Zodiacal "types," 75,78-9. 258
Zola, Émile, 82

## Acknowledgments

Key to picture positions : (T) top (C) center (B) bottom; and combinations, e.g. (TL) top lefz

Aero Photo, Paris: 123 (B)
Alexandra Palace Race Track: 197(BR)
American Federation of Astrologers: 227. 233(BR)
Associated Press: 239(B)
Banque Nationale pour le Commerce et l'Industrie: 50
André Barbauli Défense elf'Illustration de l'Astrologie, Éditions du Seuil: 47
Bayerische Staatsbibliothek. Munich: 127
Bettmann Archive : 43(T),48\{T)
Biblioteca Estense, Moderna : 149
Biblioteca Vaticana: 138
Bibliotèque Nationale : 15.71, 82
A. and C. Black Lid., photo: Gordon Anthony 229
Bodleian Library photo: Oxford University Press:136
British Museum (photographs reproduced by courtesy of the Trustees) : 159(5):
photo John Freeman: 53. 72, 81, 174, 175. 180, 181 (BL), 272,275, 276,279, 283(L): photo David Swann: 12(T and B), 20(L).
27.33( $L$ and R), 51.61, 74, 75, 108.
$109(\mathrm{~T}), 114,118$ (TL), $119(\mathrm{TL}) .120$.
121.122, 129(L). 141 ( T and B ). 142( T ). 147(T), 150, 152(T),155(T),157,162. 163,164(BL)، 171,177,243
Photo: Mike Busselle: 203, 230233 (BL), 268(B)
J. Calder Lid., photo: Alan Daiches: 11(B)

Culver Pictures inc. : 199
Debeufme el Louvegnies, Paris: 237 (B)
Doris Chase Doane Astrology, 30 Years
Research. The Church of Light Inc. : 265
Ebertin Verlag: 221 (B), 290
Éditions Rencontre:173(CR)
Elle, Paris: 206(C)
Ellioti and Fry Lid, : 11 (CL)
Eva. Milan : 206(T)
Hugh Evelyn Ltd. : 137
(C) W. Foulsham and Co. Lid. : 248-9

Ernst L. Freud : 195
horoscopes cast by Arthur Gauntlett : 29(B), 78
Dr. Geuber : 45(T)
Giancolombo News. Milan:18
René Groebli : 45(B)
Ara Guler: 111
(e) Philippe Halsman : 87(R)

Margaret Hone : 250
by courtesy of the Imperial War Museurr: 56
Institut Belge d'Astrologie Scientifique: 233(T)
by permission of the International Publishing Co., Edinburgh, from one of the Leo textbooks:324-5

Franz Jung : 222
Behram Kapadia: 109(B), 124, 189, 207
Elfriede Keiser: 219، 221 ( T )
Keystone Press: $29\langle T\rangle, 59,63,69,99$. 185(C and B)
Keystone Press, Tokyo : 238, 239(T)
K. E. Krafft. Astro-biology : 24-5

Frau K. E. Kraft: 266
Sam Levin, Camera Press: 54 (R)
Leykham A. G.. Graz:19(BL), 152(B)
Herbert List: 19(BR)
Joseph Norman Lockyer Dawn of Civilization
Thames and Hudson Lid. : 113
Lendon Express News: 43 (B), $65(B L), 241$
Lowell Observatory: 184(BR)
Mansell Collection. photo Alinari:115. 129(R)
horoscopes cast by Jeff Mayo : 249, 251, 263. 298-301
Middle East Archive, phoio Alistair Duncan: 17
Mount Wilson and Palomar Observatories, California. U.S.A.: 9
Müller el Cie, Neuhausen am Rheinfall. Switzerland : 268-9
Musés du Louvre : $26(R)$. $118(B)$ : photo Chuzeville. 54(L)
Museo Archasologico, Florence: 119(TR)
Nationale Forschungs und Gedenkstätten der klassischen deuischen Literatur in Weimar: 225(B)
National Film Archives: 84 (B). 101
National Gallery, London: 92
by courtesy of the Trustees of the National Maritime Museum, Greenwich: 184 (TL)
Musée de la Tapisserie de la Reine Mathilde, Baveux : 171 (TR)
The Nautical Almanac, by permission of
Controller of H.M.S.O.: 302-23. 327-43
The New York Sun Inc. : $173(B R)$
Nixa Records Ltd. reproduced by permission of Pye Records Lid. : 11 (CR)
Odhams Press: 204
R. Oldenbourg, Munich : 153
by permission of Her Majesty's Postmaster General: 234(B)
Pictorial Press Lrd.: 19(T), 216
Planet News: 31, 200, 286
Paul Popper Lid.: 67,89
Radio Times Hulton Picture Library : 26 (L). 79. 87 (L). 94, 184(CL), 191, 205(L). 208, 283(L), 285, 343(B)
Rascher Verlag, Zurich: 224, 225
Real Cartuja Valldemosa, Mallorca: 102
Rolis Prestco!d, photo David Swann: 236
Royal Astronomical Society. photo David Swann:166(T)
Royal Shakespeare Company, photo Angus McBean : 161
Rudaux et Vaucouleurs L'Astronomic. Larousse Editeurs: 65(T), 72-3 (drawn by John Messenger)

Sanforized Service. Manchester: 237(T)
by courtesy of the Direcior. Science Museum, London: E5(BR), 117.154.184(TR), 1E5: photo David Swann: 37
Stastliche Museen, Berlin:119(B)
Stevens Press: 206(B)
David Swann: 33 (E), 145, 246,255
Swiss National Tourist Office: 90
Theosophical Sociery:188
(2) 1939 James Thurber: 97

Topix Ficture Service : 240(T)
Twentieth Century Fox: 13. 14
Uffizi Gallery, Florence. phoio G. B. Pineider : 107. $135(T)$ : pho:o Scala: 135(B)

Ullstein Verlag. Berlin: 213
Uni-Dia-Verlag, Stutigart: 110
Universitātsbiblioshek, Heidelberg. photo Lossen: 254-5
Joseph Wilper Die formischen Mosaiken und Malereien der Kirchlichen Bauten. Herder and Co. (1917): 131
John Wood: 57. 210
Mrs. W. B. Yeats, photo : Peading University: I1(TL and TR)
Yerkes Observatory: $184(\mathrm{BL})$
Dr. Adrian M. Ziegler : 240(B)
Acknowledgment is made for permission to reprim excerpts from the following works: The English Physician and Complete Herbal by Nichoias Culpeper. published by Arco Publicetions.
Old Moore's Morithly Messenger (1908). now incorporated in Foulsharn's Originat Old Moore's Almanack
Crome Yellow by Aldous Huxley. published by Chat1o and Windus Lid. ; reprinted in U.S.A. by permission of Harmer and Row Inc.
Nehru's Lefters to his Sister, ed. Krishna Nehru Hutheesing, published by Faber and Faber Lid.
Henry Miller: His World of Uranis by Sydney Omerr, published by Villiers Publications Lid.

If the publishers have unwitingly intringed copyright in any picture or photograph reproduced in this book, they offer their sincere apologies and will-upon being satisfied as ta the owner's title-gladly pay an appropriate fee as if they had been able to obtain prior permission.


[^0]:    The Dumb-Bell Nebula in the Vulpecula galaxy photographed by a 200 -inch telescope at an American observatory. Astronamers are comstantly revising theit ideas about the universe in the light of fresh discoveries : yet modern scientific advances have never affected the world-wide popularity of astrology today.

[^1]:    A sampling of the enormous assortment of astrological literature : top left. a description of the qualities of Libra from a 15 th-century English manuscript : top right, two pages from a 19th-century Indian astrological text, depicting the Zodiac signs used in Eastern astrology. Bottom, a selection of modern astrological journals published in Europe.

[^2]:    An 18th-ceniury British "orrery" (named after the Earl of Orrery) -a clockwork mechanism that demonstrates the positions and motions around the Sun of the six planets known at that time, with their accompanying moons. Men have known since the 18 th century (some guessed earlier) that the planets, including the earth, revolve around the Sun. But, in spite of astronomers' findings, astrologers still work from an

[^3]:    A 15th-century German allegorical picture of Saturn and some of the types of people associated with this planet. Saturn. depicted as a horseman, rides in the sky above his two Zodiac signs, Capricorn and Aquarius. To astrologers. Saturn's influence is mostly חialignant. causing misfortune, disease, and death-indicated here by the criminals in the stocks and on the gallows and the hobbling cripple. Some less unfortunate Saturn types portrayed are the farmer (plowing), the gardener (digging), and the tanner (skinning a horse).

[^4]:    The planel Jupiter, with its Zodiac signs Pisces and Sagittarius, from a 15 th -century Italian manuscript. The scenes depict three medieval occupations thought to be under Jupiter : An apothecary serves a customer ; an alchemist sieves precious metals from sand; a mathematician is consulted by a client. Many astrological texts of the time were illustrated with traditional ideas of the planets anci planetary "ippes."

[^5]:    Left. Madame Elavatsky, Iounder of the Theosophical Society in 1875. with iwo of her disciples. Since the socsely derived meny of its theories from Indian mystical thought, it was inevitably colered by Indian astrology. Eelow, a monument dedicated to Thresophy at Adyar. Indla, where Madame Blavatsky established her headquarters in 1879.

[^6]:    Above right, Reinhold Ebertin, the leading light of the German "cosmobiologists"-a rebel group that has rejected many of astrology's most fundamental theories. Right, the cover of Kosmobiologie. which was founded by Ebertin in 1928 :oday one of Germany's best-selling astrological magazines.

[^7]:    Here the chart interpreted on p. 256 has been "progressed" by 50 years (one day for each year) - which, when related to the natal chart may reveal possible future trends in the native's life. The Sun is now in Virgo, which favors practical work. Saturn. who dominated the natal chart. comes into exact opposition with the Sun when the native is 21 -perhaps marking the removal of conflicts and frustrations. The ascendant, now in Pisces and in trine with the natal Sun and in sextile with Saturn, emphasizes the SunSaturn opposition, indicating that the native may now reap the reward of his former hard work. Another important aspect is Mercury in trine to the natal Jupiter, implying mental stimulation. All progressed charts, most astrologers agree, must be studied in relation to the birth chart.

